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June 6, 1994
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FROM THE EDITOR...

Seems like a lot has happened since Issue 1 of Commodore World headed out the door just a few short weeks ago. About a week later, on April 29th, Commodore announced their plans to liquidate. We had already been watching the situation at Commodore closely, and had planned to bring you any updates. With this news, however, we decided we should expand on those plans, so you'll see quite a bit about this turn of events as you read this current issue. Tim Walsh covers a bit of this territory in SPECIAL REPORT; you'll find some of the press releases that have been floating around about this in ON THE HORIZON; Jeff Jones mulls it over in the LoadStar section of THE CONNECTION; and Charles Christianson give Commodore a little flogging in OVER THE EDGE. Quite a bit of attention, but it's obviously an important topic.

You'll no doubt notice that this issue has a few more pages than the last; we've added a couple of feature articles to the mix this time around. We've also expanded our IN REVIEW section, and added a MINIVIEWS for some smaller reviews. With all the additional review space, we needed to get someone on-board to help handle these; we're happy to announce that much of this will fall into the lap of Sherry Freedline. Sherry has a lot of experience with Commodore programs since she handles most of the file librarian chores on GEnie, and we're happy to welcome her to our pages.

We also welcome another new regular to our pages this month; Les Songa has taken over the CARRIER DETECT area, and has converted that into a column. ON-LINE NEWS NIBBLES, another new department handled by Les, will bring you those little news tidbits that were previously found in CARRIER DETECT. BBS SPOTLIGHT, which will continue to grace our pages, is now considered to be a separate department.

Another reason for adding some pages to this issue is Gene Barker's BASIC INSTINCTS. Gene started things out real simple last issue with BIG GUNS, but has stepped up the pace considerably with STARSHIP CONQUEST. This is a game that Gene will continue to expand on over the next few issues, and if the first installment is any indication, we're in for a BIG one! To help everyone avoid all those typing errors that pop up when entering programs, we've created CHK-LIST. Don't enter without it!

Finally, you'll notice some other changes this issue—new paper, new printing process, second class mailing; we're experimenting, and trying to do what we can to continue to bring you the best in information on the Commodore computing front. Be sure to write us, and let us know what you like and dislike (so far we haven't heard much in the latter category, as you'll note in our new BACKTALK section). We're always looking for better ways to do things—after all, we're Commodore users!

Doug Cotton
Commodore World Editor

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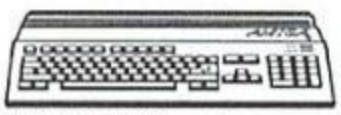

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BACKTALK

COMMODORE WORLD READERS SHARE THEIR THOUGHTS

What a terrific effort!! This promises to be a landmark publication for the Commodore computerist. I have been Commodore computing for only a few years and have seen several publications devoted to this platform come and go. Please. Long life to *Commodore World*.

- Edward Rohan, Anaheim, CA

Congrats on your new *Commodore World* Magazine. Like the majority of us I had a subscription to *RUN* magazine for years and was quite upset at it's demise. (The publisher still doesn't understand why I do not want to renew the *PC World* subscription he has been sending me as a substitute.)

- Benjamin Dorsey, Tequesta, FL

Just received my premier issue of Commodore World. Congratulations for a top-notch publication; I look forward to following issues.

- A. Herbig, Derwood, MD

Just a note to say thank you for the new magazine... I received the first issue of *Commodore World* and was very impressed. The articles were very interesting and they were easy enough for those of us who aren't familiar with computer terms to understand. I am excited now because I know there are others out there who still have a Commodore, I know there is hardware and software available, and more importantly I know how to get my hands on it.

- Darla Smith

WOW! It's beautiful! I just received my first copy of *Commodore World*....THANK YOU, THANK YOU, THANK YOU!

- John Marcelle, Manteca, CA

Just read your Premier issue and wanted to let you know what I thought about it. At first, I thought it looked rather thin, but after completing it, I was rather pleased. I feel that you compliment *dieHard* very well and found everything to be what I am looking for. Excellent!

- Dan Koleski, Pres. L.U.C.K.Y.

I just got *Commodore World* today - folks - I do think we have a WINNER! Saw a number of neat articles by authors I have read & enjoyed. I really think CMD took a really astronomical chance with this venture - But I really think that these guys have really got a feel - For where IT IS !

- Ron Boissoneault, CBM Conference, Fidonet

I just got the premier issue of *Commodore World* magazine from CMD, and [it had] a VERY nice review of QWKRR 128 V4.2 in it... VERY well-done magazine by the way, but what ELSE would we expect from CMD?

The magazine is high quality... and has articles of interest for everyone from beginners to the "pocket protector" crowd. I particularly like the feeling of camaraderie when referring to the "competition". I personally feel the competition is healthy, and I'm glad NOT to see any attitude of bashing the competition, but an attitude of cooperation. Each of the several publications have their niche in the market, and there should be room for everybody.

From the review of coming issues, I can hardly wait for the NEXT copy, which promises a tutorial on using SCSI commands with the HD.

I would certainly encourage everyone here to subscribe so we can continue to see the great support CMD has and is providing. I'm a bit of a skeptic also on new publications, but after seeing this issue, I immediately called and subscribed. By the way, Commodore Country only got 6 issues, and they were gone in minutes!

- Phil Heberer, CBM Conference, Fidonet

I just got my copy of *Commodore World* yesterday. I've just about read it all, and it is very nicely done. I think the biggest thing that surprised me, and pleased me the most, was the number of advertisers. That used to be the thing I enjoyed most about the old Commodore magazines.

It is a very professional looking publication, though I would have expected no less from CMD. The article on printers and interfaces was extremely useful. I wish I had that kind of information when I started buying printers.

I've never been one to recommend subscribing to a magazine just to make sure it stayed in business. I always felt any product should be able to develop its critical mass based on the quality of its product or service. I think this one is going to do just that, based on the promise of the premier issue and the people already writing for them. This one is a must-have. If you haven't subscribed already, you are definitely missing out.

I personally hope that they evolve into something more along the lines of the *Transactor*. At this stage of the game, there are a lot more experienced users now than new users... and I *miss* the T! Nice work... I really am expecting big things from you all at CMD!

- Ed Bell, CBM Conference, Fidonet

I got my issue of *Commodore World* last week and have already read it cover to cover twice. I think it's going be a great mag. The reviews and articles were excellent. Since I'm a CMD user (RAMLink and SwiftLink) it's great to see articles covering these subjects. I hope that you will cover CMD's product line in depth with hints and advanced uses for them. I would especially like articles along the line of the old *Transactor* magazines. Short routines and programs that I can adapt to use in my own programs. Keep up the good work.

- Charles Lawson, Commodore RT, GEnie

At long last, I do believe us people out west are finally getting our *Commodore World* magazines. I got mine today and leafed through it and was VERY, VERY impressed. And I haven't even read it yet! Once again, Kudos goes to the people at CMD. You will have my support for as long as my Commodore is alive.

I know that most of the 8-bitters left are getting on in years (heck, in my user's group I am the 2nd youngest at 29). I am doing my best to let some of the younger guys know that the C-64/128 world is still active, productive, entertaining, as well as affordable. With CMD coming up with new products and excellent support, it is helping us revitalize a dying group.

- I. McKinney, Commodore RT, GEnie

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JUST ASKING

THE COMMODORE WORLD STAFF LOOKS FOR ANSWERS TO USERS' QUESTIONS

Q The CMD Hard Drive is great. No more thousands of disks stacked around my computer. However, I find myself intimidated by 'multimedia' upgrades and 16 bit sound cards. Is there any hope for Commodore sound and multimedia capabilities in the future.

- Don Bostic, Dallas, TX

A Let's not lose sight of the fact that not too long ago, the C-64 was considered to be on the cutting edge of sound and graphics. Its capabilities as a 8 bit computer can still amaze 16- and 32-bit computer users. Although there are no true multimedia type applications at this point, much of the necessary hardware technology already exists. What is required for 'multimedia'? Mass-storage, lots of RAM, stereo sound and high quality video all of which are available at the current time. All that is needed is software which utilizes these hardware devices properly and multimedia could come to the C-64 and C-128. Now, I can't predict what is going to be released in the future but I would not be surprised to see some multimedia software.

Q Which is the bigger strain on my 128-D; leaving it on all the time (except monitor and drives) or turning it on and off several times a day? Also, if I only use my 1750 REU to store a dictionary and occasionally other purposes not requiring more than 512K, is there an advantage in having a 1 or 2 MB REU? Why are RAM units like GEORAM and BBGRAM limited to GEOS?

- R.B., San Jose, CA

A The most strain that is put on electronic devices is during the power up sequence when the surge of current begins to flow through the components. Once powered up, components stabilize and operate effortlessly. The only exception to this is if environmental conditions are unfavorable. Favorable operating conditions

for modern electronics parallel the comfort zone for most people; temperatures between 40 and 75 degrees Fahrenheit are most favorable and air quality should be good to excellent which means that there is minimal dust and smoke. Therefore, if environmental conditions are favorable, it is better to leave the device on rather than turning it on and off frequently.

If your applications only require 512K of RAM, there would be no benefit to having additional capacity. Besides, there are very few programs that can use an expanded REU.

It is not possible nor is it practical to link REU's. All of the 17xx series REU's control registers occupy the same memory locations. Therefore, if you chain them together, there will be a conflict when the computer sends the same commands to both REU's at the same time.

RAM Expansion units such as GEORAM and BBGRAM are limited because of the fact that they do not have a Direct Memory Access Controller (DMA Controller). The DMA controller is a custom chip that Commodore developed to enhance the speed of 17xx REU's by performing memory transfers in hardware between the REU and the computer. The DMA controller has a specific set of commands which are utilized by software to control the REU. Conversely, GEORAM and BBGRAM do not have a DMA controller which means that software must be written differently so that all memory transfers between the computer and RAM expansion are processed by the computer instead of internally within the REU. The end result is that access to a 17xx REU is approximately 20 times faster than that of a GEORAM.

Q Great first issue! ... My problem is that I have to shut down whenever the TV comes on as the C-64 causes herring bone lines in the TV picture. I have tried several 'Mickey Mouse' filters and nothing seems to work. Do you have any suggestions that I could try?

- Doug Blanchard, Grapeview, WA

A Unfortunately, RF interference has long been a weakness for Commodore equipment. Before you assume that it is the computer itself, you should disconnect everything from it—making sure that all other peripherals are turned off. Then, systematically begin adding back one peripheral at a time until the interference appears. Once the interference appears, try switching the connecting cables (i.e. if its the disk drive, try a new serial cable; monitor, new monitor cable etc.) If that does not work, try plugging in all of the power supplies for you computer equipment into a different wall outlet (Make sure that the new outlet is not part of the same circuit as the TV.). Sometimes, the electrical wiring itself can act as a giant antenna and by plugging in your system into a different electrical circuit you can route the interference away from the affected device, which in your case is the TV.

If none of these suggestions work, you should open up the device that is causing the interference and inspect the interference shields that cover the board(s). These shields are usually screwed or soldered to the board. It is important that these shields be securely attached to the board and making good contact in order to effectively absorb the RF signals. And, if all else fails, try cable TV; it is not usually effected by RF noise.

Q How can I verify which partition I'm in on HD, FD, and RL units via software? Is an annotated listing of BASIC-8 code available? Has anyone come out with a compiler that compiles BASIC-8 commands in addition to BASIC-7.0?

- Ben Dorsey, Tequesta, FL

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A Verifying your current partition on a CMD device is quite simple. You should try using the Get Partition Info (G-P) command which is covered in detail on pages: 71 in the RAMLink manual, 9-15 in the Hard Drive manual and page 45 in the FD-2000/4000 manual.

As for BASIC-8, I have not had much luck. Current information on this product is sketchy at best, so if there are readers out there that can shed some light on BASIC-8 related questions, we're all ears. However, I am quite sure that an annotated listing of source code was never released. Companies with commercial software rarely release documented source code for their software. While researching the answers for this question, I ran across someone who recalled speaking to Lou Wallace about BASIC-8 compatibility with the Abacus C-128 compiler—although we were unsure if such a version was ever released. We will continue to investigate BASIC-8 and will print our findings. Once again, if you know something about BASIC-8 please let us know.

Q What software do you use to produce *Commodore World*?

- Darla Smith

A At the risk of being buried in mail, I am going to answer your question truthfully. Commodore World is produced on a Macintosh Quadra 650 with 16 MB RAM, Internal 500 MB drive, external 245 MB drive and CDROM; Mac II with 5 MB RAM, internal 245 MB drive, external 290 MB drive; 88 MB Syquest, CMS 60 MB Tape Backup, Microtek Scanmaker IISP 24-bit 600 dpi color scanner; and an Apple LaserWriter Select 360. We use a variety of software packages: Aldus PageMaker 4.2, 5.0; Microsoft Word 5.0; Adobe Photoshop 2.51, Aldus Freehand 4.0, Adobe Type Manager, and Broderbund Typestyler.

Although we believe that it is possible to produce a professional looking publication on the Commodore, we do not feel that we could produce this type of publication in a timely manner and maintain our current obligations and commitments to CMD. Therefore, we have decided to use the Macintosh system, as did our predecessors with *RUN*, to help us produce the magazine and continue our unparalleled support of C-64 and C-128 computer.

JUST ASK!

If you're having trouble getting your system to do what you want it to, or think you've got something wrong with your hardware, *Just Asking* may be able to help find a solution, or get you pointed in the right direction. Send your questions to:

CW Just Asking
c/o Creative Micro Designs, Inc.
P.O. Box 646
East Longmeadow, MA 01028-0646

Please try to keep your questions short and to the point. Doing so will increase your chances of being published.

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ON THE HORIZON

COMMODORE AND COMPUTER INDUSTRY NEWS

Commodore Announces Liquidation

After the close of business on Friday, April 29, 1994, Commodore made an announcement. Here are the stories as received from around the globe:

COMMODORE INTERNATIONAL LIMITED TO LIQUIDATE

NEW YORK, April 29 /PRNewswire/ —Commodore International Limited (NYSE: CBU) announced today that its Board Of Directors has authorized the transfer of its assets to trustees for the benefit of its creditors and has placed its major subsidiary, Commodore Electronics Limited, into voluntary liquidation. This is the initial phase of an orderly liquidation of both companies, which are incorporated in the Bahamas, by the Bahamas Supreme Court.

CONTACT: Hock Tan, CFO of Commodore International Limited, 215-431-9160

COMMODORE FOLDS

By DINAH WISENBERG BRIN Associated Press Writer

WEST CHESTER, PA. (AP) —Commodore International Ltd., a pioneer in the personal computer industry, said late Friday it is going out of business.

The company plans to transfer its assets to unidentified trustees "for the benefit of its creditors" and has placed its major subsidiary, Commodore Electronics Ltd., into voluntary liquidation.

"This is the initial phase of an orderly voluntary liquidation of both companies," Commodore said in a brief statement.

Company executives could not immediately be reached Friday evening.

The company last month reported an $8.2 million loss for the quarter ending Dec. 31 on sales of $70.1 million. A year earlier, Commodore lost $77.2 million on sales of $237.7 million in the same period.

In the latest report, Commodore said financial limits had thwarted its ability to supply products, leading to weakened sales. One of its new products, the Amiga CD32 video game, had sold poorly in Europe, where the company did most of its business.

The company's net worth turned negative in the fiscal year ended last June 30.

Its stock, which had traded at around $3 per share before the quarterly results were announced last month, closed unchanged at 87 1/2 cents per share on the New York Stock Exchange Friday.

"This is a company that briefly captured the attention of the American market and didn't go where the market was going," said David Coursey, editor of the newsletter P.C. Letter in San Mateo, Calif. "They just never managed to change with the marketplace."

While grabbing some market share and attention in the late 1970s, Commodore's products were something between PCs and game machines "and never quite became either," Coursey said.

Commodore started 40 years ago as a typewriter repair company in the Bronx. Its extension to the adding machine business paved the way for it to make calculators and then personal computers by the mid-1970s.

Commodore competed with Radio Shack for the first computers sold to homes and co-founder Jack Tramiel became a highly-regarded figure in the fledgling PC industry.

By the early 1980s, it was overshadowed in the PC business by Apple Computer Inc. and IBM. Software manufacturers didn't create as much software for Commodore's Amiga line as it did for Apple and IBM-compatible machines.

In recent years, most of Commodore's business was in Europe.

NewTek Inc. of Topeka, Kan., created a product called Video Toaster that converted Commodore's Amiga to a video-editing system. The $2,500 product was popular with small advertising agencies and home hobbyists. The company's phones were busy Friday night.

COMMODORE INTERNATIONAL <CBU.N> TO LIQUIDATE

NEW YORK, April 29 (Reuter) - Commodore International Ltd. said it authorized the transfer of its assets to trustees for the benefit of its creditors and placed its major subsidiary, Commodore Electronics Ltd. into voluntary liquidation. The company said this is the initial phase of an orderly liquidation of both companies, which are incorporated in the Bahamas, by the Bahamas Supreme Court. —New York Newsdesk 212-603-3310.

COMMODORE COMPUTER GOES BANKRUPT, FRANKFURT UNIT SAYS

FRANKFURT (MAY 5) DPA - Commodore International Ltd., the home personal computer company, faces bankruptcy and has filed for liquidation which will see its units around the world closed or sold off, Commodore of Germany said Thursday.

A spokeswoman for Commodore Bueromaschinen GmbH in Frankfurt said that the Nassau, Bahamas-based parent company hoped to continue operations on a smaller scale, while still keeping the "Commodore" and "Amiga" trade names, with the help of an Asian investor.

"Only five people here know the name of the investor," said spokeswoman Karola Bode.

She said that some of the 35 Commodore units worldwide had already been liquidated. Others stand to be closed while those which were still profitable -including companies in Scandinavia, Italy, Canada and Germany - would probably continue operations.

In the 1992-93 year which ended last June 30, Commodore International lost 356 million dollars, on turnover of 591 million. At the time it had some 1,500 employees.

Commodore made its reputation by establishing the personal computer as a home product. After 1982, some 16 to 17 million of the 64-kilobyte "peoples computer" C64 were sold worldwide.

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But the company ran into problems toward the end of the 1980s in finding a successor to the C64, at the same time that the competition was developing and marketing increasingly sophisticated PCs at lower prices, market analysts say.

A further mistake may have been Commodore moving too sluggishly and too late in entering the market of IBM-compatible computers.

RIO Relocates

Rio Computer, U.S. distributors of the Skantronix Handy Scanner and other European products, has recently relocated. Their new address and phone number are:

Rio Computer
572 Tam O'Shanter
Las Vegas, NV 89109
Phone: 702-369-2633

Rio has also recently discontinued distribution of the once popular Action Replay cartridge, manufactured by Datel, Ltd., a British-based company.

Hewlett-Packard Releases New Lasers

Hewlett-Packard, a Santa Clara based manufacturer of computer peripherals, has recently released updated versions of their popular HP LaserJet 4 and HP LaserJet 4ML laser printers. The new models, the HP LaserJet 4 Plus ($1839) and HP LaserJet 4ML Plus ($2479), offer higher speed printing using less memory than the earlier versions. The company also claims that these new 600 dpi, 12 page per minute printers use less toner and consume less power than their predecessors. Both printers offer PCL5 interpreters, while the 4ML version also offers Adobe Postscript Level 2. *Hewlett-Packard Co., Direct Marketing Organization, P.O. Box 58059, Santa Clara, CA 95051; 800-752-0900.*

Titus Reaffirms Commodore Product Line

Titus Software, producers of noted games including Crazy Cars and The Blues Brothers, recently contacted Commodore dealers concerning their game titles for the C-64/128. Commodore World contacted Cindy Hitz, Marketing Director for Titus, who stated that they receive many calls from Commodore users looking for software, and confirmed that several titles were still available. Look to future issues of Commodore World for reviews of these programs. *Titus Software Corporation, 20432 Corisco Street, Chatsworth, CA 91311; 818-709-6537.*

LoadStar Celebrates 10th Anniversary

Congratulations go to LoadStar and its staff who celebrated their 10th Anniversary of producing their high-quality disk-based magazine for the Commodore 64. Not only are we happy to see them celebrate this milestone, but we anxiously look forward to the next 10 years of LoadStar.

Xetec Printer Interfaces

Xetec, a long-time supplier of hardware products for the Commodore 64, Commodore 128, Amiga, and Atari ST computers recently announced that it would no longer be producing the Super Graphics and Super Graphics Jr. printer interfaces for the Commodore 64 and 128. Supplies of these interfaces were rapidly depleted from most dealers, leaving the Micro R&D MW-350 printer interface as the last remaining product still being produced in this category. This marks the end of the last Commodore 64/128 products offered by Xetec, who once dominated the Commodore printer interface market and also produced the Lt. Kernal hard drive.

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THE CONNECTION

News from Commodore-related Vendors and Publishers

Everyone's talking about it on the nets. There is no end to the downloads of Commodore jabber these days. Commodore Business Machines, once THE personal computer giant, both here and abroad, has finally shut its doors. No power on earth could stop it, and if anyone was praying for Commodore, the prayers bounced off the stratosphere.

I'm reminded of a biblical proverb, "don't pray for the dead..."; yet around the world, hundreds of thousands (if not millions) of Commodore enthusiasts, from 8-bit C-64 users to 32-bit A4000 users, are hoping and praying for some reprieve. Would some larger company purchase Commodore's technology and revive some of the products? Not likely. Oh, the technology is for sale, and it will be snatched up, but it will probably go to make other PC platforms more powerful. I know this is an 8-bit magazine, and probably no computer is more hated by this readership than the Amiga, but Commodore had a good thing going. Just like the C-64, the Amiga was better than everything else, more efficient, faster, and easier to use. To approach the multimedia power of Commodore's Amiga, the PC must be supe'd up, and it really still pales. That's because when you supe' up the Amiga, you have the Video Toaster, which dazzles you every week on Babylon 5, SeaQuest and other television shows. If you want a PC or a MAC to do Babylon 5-type effects, you'd need gobs more RAM, and thousands of more buck$—and that's just for the software, not the hardware. Indeed, the last time I saw a Mac system similar to the Toaster, the software alone cost over $8000—about $4000 more than a decent Toaster system. Let's hope it's been reduced for the masses since then.

Commodore has always been shunned by the market. I remember 1984, when C-64's could still be found in every PC store, Kmart, and even newly sprouting video rental stores. There was probably no better selling PC, yet the word has been steady for 10 straight years: "Drop the C-64. It's dead." Actually the feeling was more like: "Drop the C-64 before you find yourself the only person in the world using one." I always asked myself, what do I care if everyone else is using a MAC or a PC—unless I want to pirate and copy and borrow? Instead what has happened? A steady succession of obsolete MS-DOS computers. Try to sell someone a 386SX, and they'll call it a piece of junk. I remember when that was the rage only two years ago. I'd really hate to buy 486DX or Pentium MS-DOS computer, and then find out that Windoze version "Next Friday" will run too slowly on it. Maybe in a couple of years the market will stabilize, and I'll buy in—but I still love my C-64/128 and Amiga. I have a 286 16 MHz (remember when that was supposed to be blazing fast?) computer that I literally NEVER EVER use.

Every day I marvel at how much I love my C-64's screen editor. There's nothing like it in the world. Since I'm currently on a fat-reduced diet, I have to calculate calories and fat every day. It's the easiest thing in the world for me to type one line in the immediate mode:

```
?80+18+270+100+2*(80+45+5+10)+140+310
<RETURN>
```

The line above represents the calories of various foods I've eaten today. There's no easier way for me to do it. Can't do it on a spreadsheet this easily. Calculators don't let you go back and edit or plan ahead for the rest of the day. You can't do that on an IBM or Amiga without booting up a C-64 emulator. In fact I've done that. For me, the C-64's command line interface (immediate mode) is a wonderful way to use a computer. It is NOT the best way to launch programs.

I truly love my C-64. Actually I love the 64 mode since I only touch C-128's as of late. I enjoy programming the machine. LOADSTAR has said it before, and we'll say it again: We not only love programming and editing our two-disk magazine, but it's profitable! We implore all Commodore enthusiasts not to fall by the wayside. Don't give all your favorite Commodore vendors the preemptive heave-ho because you feel that they're about to drop you. Call or write the vendor. Ask them their plans for the future. How's the market? LOADSTAR is extremely successful. We'd be complete and utter fools to drop our loyal subscribers, and move on the PC. For one thing, we already have a PC, MAC and Apple II magazine. As we've always said, as long as our readers keep subscribing, we'll keep coming up with new programs, graphics, tutorials, utilities, and music. Commodore's death means little to us. Commodore has never helped us. Even when we've communicated with them, they were condescending, and cared very little about our market. The people who are really hurt by this are Amiga third party developers. They'll probably have a tougher time allocating money for R&D. What of Commodore's custom chips? Where will they come from? In the long run, this will mean little. We're all pioneers. The personal computer world is a decade young. Every computer in the world is a Model-T, even the Pentiums and PowerPCs. Ten years from now, we'll all wonder how we got along at 1-100 MHz, one processor, and no voice recognition.

- Jeff Jones
Associate Editor, LoadStar

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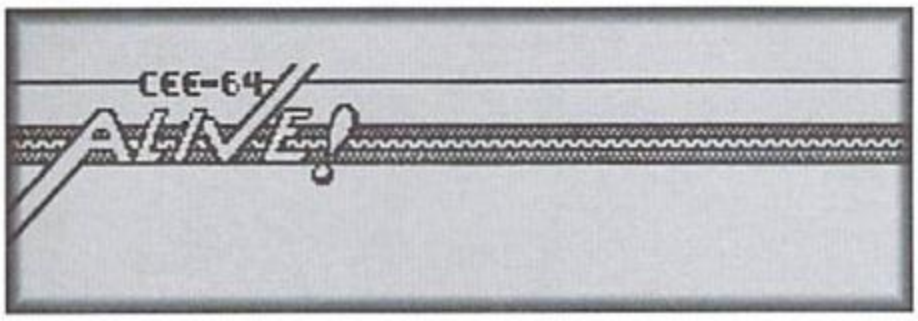
THE CONNECTION



We here at CEE-64 Alive! have been very busy supporting the CEE-64, 128 and PLUS/4 computers. As reported in the last issue of *Commodore World*, CEE-64 Alive! had a special interest group (SIG) on Delphi. We regret that due to unforeseen circumstances we've had to discontinue this SIG.

Volume 3 Issue #2 has been mailed to our subscribers, and it's another huge issue this time around with not one, not two, but THREE disks! New to our line up is "Skyhigh", a column by Jan Siren about using Sky Travel, using current astronomical events to explore the world of the heavens. Who said the PLUS/4 is an orphan? Please don't tell Alvin Conrow this, as thirty-two of his articles on the PLUS/4 appear in this issue. I have to admit to being a bit of newbie with the PLUS/4, but I certainly learned a great deal from these articles, and not just about the PLUS/4, either. For instance, did you know that you can use an AM radio in your computer room as a "lightning detector", as it will report lightning (heard as crackles or static) long before the skies in your neighborhood become dark with storm clouds?

Other goodies in CEE-64 Alive! Vol. 3, Issue #2 include a review of Digimaster, a new digitized sound program; a review of TopDesk, Germany's GEOS DeskTop replacement; plus several programs from Australia for just about every interest, including dieting (it is that time of year, after all), genealogy, invoicing, or designing circuits with a CAD program.

Regular features, such as "Litlbits", which is far from little, includes tidbits of information from a variety of sources. This issue has almost 300 disk blocks of useful bits of information.

I can't walk into Jack Vander White's office (he's CEE-64 Alive!'s publisher), as I live in the Midwest while he's in Sacramento, California. However, I imagine it's quite a sight, as Jack has been putting together collections of software packages for CEE-64 Alive! to offer at reasonable prices, including GEOS, 128, PLUS/4, Fun Graphics Machine Clip Art, Australian games, and Ham Radio collections. I'm sure I left a category or two out, but I'm sure you get the idea...

Meanwhile, it's time for me to start on our next issue.

- Gaelyne Moranec
Editor, CEE-64 Alive!

dieHard

This month our CP/M guy, Mike Gordillo, is back! Explore this powerful mode on your C128 with us. This is a whole new world that your commodore can open up for you. Frontier time!

Mike Eglestone is back in class with his Telecommunications, Your commodore, and YOU. Get your modem and term program running so you can log on to the Internet and see just what R. J. Smulkowski, a.k.a. the Cyberspace Cowboy, is talking about!

Sometimes it's not your fault! Check out Mike Gilsdorf's DOS Bugs and Quirks. Some you may have encountered, some you may want to avoid.

PRG is loaded! Check out our new text readers, Text to Screen & Text to Printer by Ernest Barkman, complete with word wrap and a paper saver option. These puppies run on any commodore 8-bit machine! James T. Jones' Label Printer makes quick labels a snap!

On this month's Spinner we have Ted Meyer's Bingo! This is a full featured Bingo program that can even keep track of everybody's cards! It will even tell you who won and you can continue the game until everybody has a Bingo!

This, our second issue on newsstands, is our First Annual Rarities issue! We've gone through our listings, updated them, added more and here they are! The largest list of commodore supporters we've ever published. Plus Scot Derrer's own Rarities column and a special Rarity!! You won't want to miss it!

dieHard, the Flyer for commodore 8bitters is now available at many B. Dalton, Bookstar, and other Barnes and Noble book stores.

- Brian L. Crosthwaite, Editor

FUN GRAPHICS MACHINE

GETTING OVER THE FGM HUMP

Getting started with the FUN GRAPHICS MACHINE (FGM) is without question the hardest hurdle to jump. So why bother, RIGHT? Wrong! That's what I thought at first. Month's later, and I emphasize the "s" on month's, I found myself doing the unthinkable. I started to read the MANUAL (when all else fails, read the instructions, is my motto). After a few pages the light came on. This program will do *ANYTHING* my printer can handle. Now I knew why to bother getting started with FGM. My addiction grew, as I used it for everything.

Lets kick some of the hurdles. I will assume you've been letting FGM collect dust as I did. From the beginning:

Place your BACKUP COPY of FGM in your drive and enter:

```
LOAD"*",8        <RETURN>
RUN              <RETURN>
```

If you are using JiffyDOS it will load fast, a bit slower with fast load cartridges. A MENU will soon appear asking you to select a section. The

(continued on next page)

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The Connection

Fun Graphics Machine

(continued from previous page)

selection bar defaults to CREATOR. Press the <RETURN> key. Next you are asked if you want to use FGM's fastload. Do not use FGM's fast load if you are using JiffyDOS, a cartridge, or any drive but a 1541.

Now the MAIN MENU for CREATOR is showing. The highlight bar defaults to option number 4, GOTO HI-RES SCREEN EDITOR. Press the number <4> key or the <RETURN> key. What's this! A bunch of trash is showing on the screen. This is correct, FGM looks for Hi-Res screens left behind by other programs. Now press and hold down the following three keys: <SHIFT><CTRL><E>. A prompt will show 'ERASE'; press the <Y> key and the screen will clear. Say what! No way; I've got a goofy looking dog. The dog is your cursor. You can move it around with the cursor keys like any other cursor. Try it. This cursor happens to also be your GRAPHIC BUFFER no. 3. You have six GRAPHIC BUFFERS to choose from in CREATOR. Press the <2> key to see a cat. Now the cat is your cursor. Press <3> again to see the dog. By pressing <1> through <6> you will see six different graphics. You can load your own graphics in buffers 1 through 5. To place the cursor (GRAPHIC) on the screen, press the <P> key to PASTE it to the Hi-Res screen. The dog should have flickered and a faint ding sounded to let you know it was pasted. Press the cursor keys again to see two dogs. One is your cursor, while the other is part of the Hi-Res screen.

Lets add some text to our screen. Press the <T> key. You are now in TEXT MODE. Your text cursor is now a small square box 8 pixels by 8 pixels. Use the cursor keys to see it move around. For fun type your name on the screen. You have five TEXT BUFFERS to choose from while in the CREATOR SECTION of FGM. Press and hold the <CTRL> key and press the <1> key. Now type something. The text is different. Use the <CTRL> key along with the keys for the numbers 1 through 5 to select any of the five TEXT BUFFERS.

To escape from any MODE, press the <RETURN> key. It will track back to the MAIN MENU.

Next month I will explain TEXT and GRAPHICS MODES in more detail. And how to load your own graphics and text into FGM.

- Jerry Freadman

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Correspondence Groups

Last issue we incorrectly listed the group below as an Illinois group; it is in fact a correspondence group made up of users that keep in touch via mail. There has also been a change in their address.

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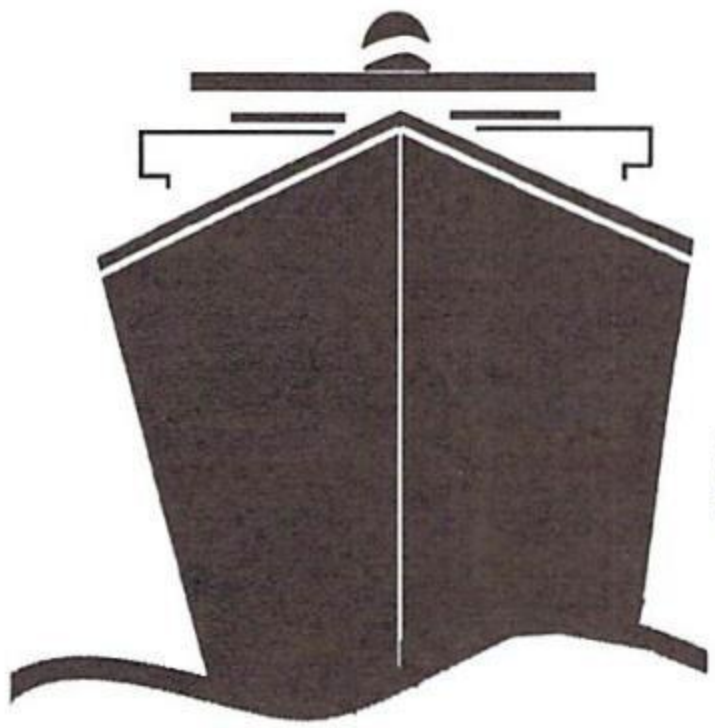

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TOP TIPS

FROM OUR READERS AND STAFF

24-Pin Printing

In our Premier issue of *Commodore World*, our feature article on *Printers & Interfaces* had a short program that helped adapt newer 24 pin printers to some older C-64/128 software. This suggestion prompted a letter from Mr. Arthur Herbig of Derwood, Maryland who attempted to use the program with Printshop and his Panasonic KXP-1123 24-pin printer. In his letter, he states that our program didn't work, and his document continued to print elongated. However, another program which was offered in *Loadstar #105* worked fine for him. The two programs are listed below; the first is ours, the second is from *Loadstar*.

Program 1:

```
OPEN4,4
PRINT#4,CHR$(27);CHR$(65);CHR$(8)
PRINT#4,CHR$(27);CHR$(50);
CLOSE4
```

Program 2:

```
OPEN4,4
PRINT#4,CHR$(27)+"3"+CHR$(21);
CLOSE4
```

Okay, so why does one program work with Printshop on a 24-pin printer while the other program does not? There are a couple of possible reasons. First, there is the difference in the way that the two programs try to accomplish the task. The *Commodore World* program uses an Escape "A" followed by an Escape "2" to set the line spacing to 8/72 of an inch. The *LoadStar* program uses an Escape "3" to adjust line spacing to 21/216 of an inch.

It is our understanding that there have been a couple of different revisions of the Printshop printer drivers, which may explain why one adjustment works but the other does not. We feel that both drivers are going to be useful with different programs. One will probably work with certain programs while the other will work with a different set of programs.

We plan on looking into this issue further, and as soon as we get a chance to speak with George

Wells, the renowned printer expert who gave us the tip, we will probably shed some more light on the subject. So in the mean time, try both programs and use the one that best suits your particular application.

Laser PrintShop

Here is a tip from Robert Reeves of Whittier, CA, for those of you who might be using an Epson Action Laser printer. If you are trying to print signs in Printshop and are having trouble with the sign getting split into two pages, Robert suggests using 8.5"x14" (legal) size paper and change the paper size to legal on the printer.

Also, if you are using Paperclip III with this printer, change the page length from 66 to 62.

RUN Paint Mouse Fix

A few weeks ago we got a call from a user asking if the new CMD SmartMouse would have the same problem that the Japanese version of the 1351 had with *RUN Paint*. While we too had experienced mouse problems with *RUN Paint*, we had no idea what this had to do with a Japanese version of the mouse. The caller directed us to a tip published in the November 1989 issue of *RUN*, in the *Mail Run* column. Sure enough, here they stated that it was a "Japanese-made version of the 1351 mouse" that caused the *RUN Paint* pointer to jump around on the screen.

After looking into this problem, we discovered that the problem had nothing at all to do with the version of the mouse; the true problem lies in *RUN Paint* itself, which fails to provide a proper delay after switching the internal POT registers to read joystick port 2. The program below will correct the problem without affecting any other functions of the program. Run this patch program on a 64 using a backup copy of *RUN Paint*.

```
452A  10 A=A+1:IFA=1THENLOAD"O
      B.RP",8,1
1AE7  20 POKE5830,146
D006  30 OPEN15,8,15,"S0:0B.RP
      ":CLOSE15
4BC7  40 POKE45,PEEK(174):POKE
      46,PEEK(175):POKE43,0:PO
      KE44,17:SAVE"OB.RP",8
D218  50 POKE43,1;POKE44,8:NEW
```

TOP TIPS Needs Your Input!

Each issue we'll print the very best tips we receive from our readers. One of these will also be chosen as the top tip of the issue, and the contributor will receive a special bonus from Commodore World. Send us your tips on using and programming your Commodore 64 or 128, and you may just be the one to get honored as the contributor of Commodore World's Top Tip! Send your tips to:

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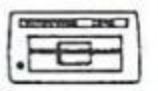

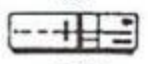

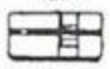

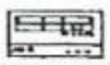

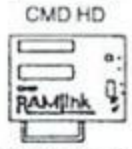

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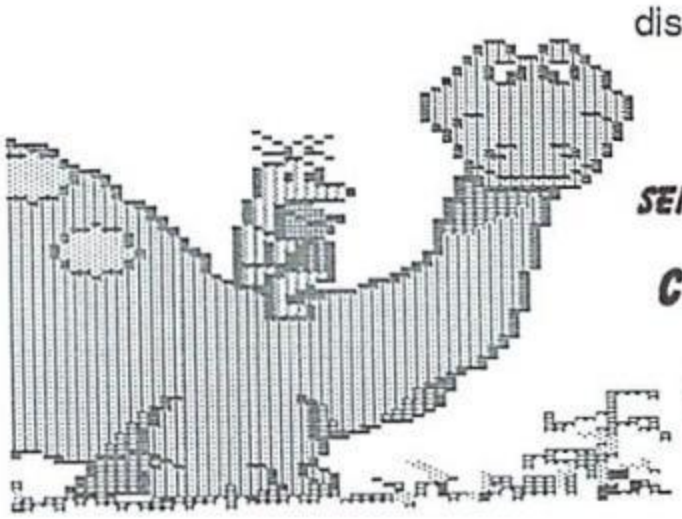

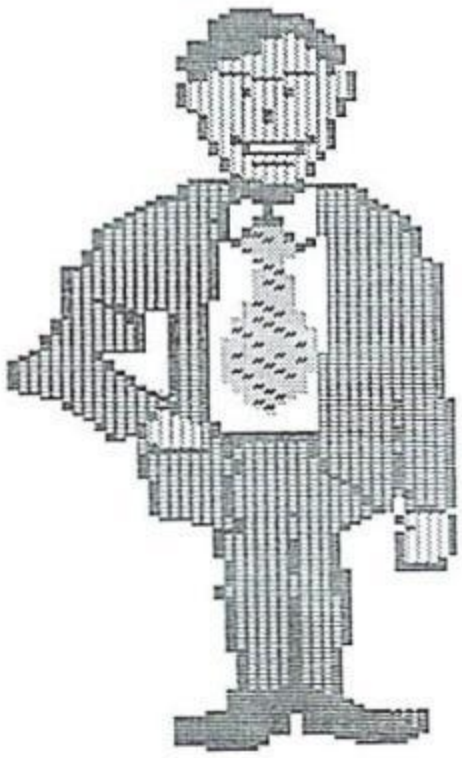

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Just For Starters

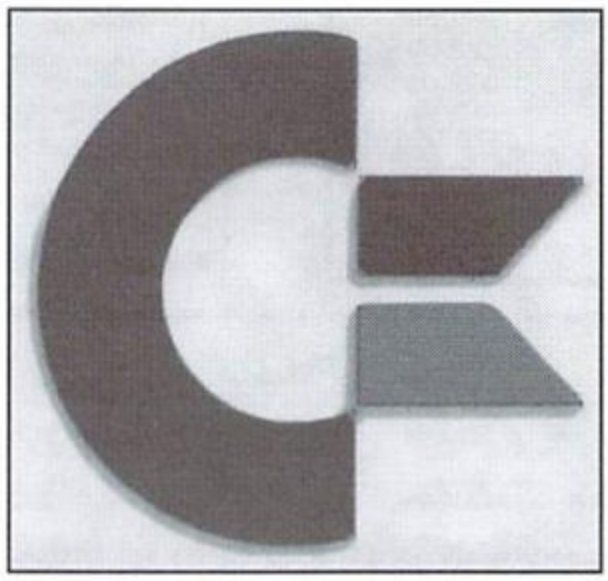
by Steve Vander Ark

FOR USERS JUST GETTING STARTED IN COMMODORE COMPUTING

Last issue I started off this column by saying that my computer talks a lot. But then I proceeded to spend most of my allotted word count talking about how *you*, the user, talks to the computer. I did that on purpose, since talking to the computer by means of typing on the keyboard is one of the very first things you'll do once you get everything plugged in and powered up. (Take a look at the sidebar accompanying this column for more information about getting the cables all hooked up correctly.)

But now that you've started typing commands into the computer using that built-in computer language called BASIC, you'll need to know more about how the computer talks back to you. As I mentioned last month, the Commodore tells you right off the bat that it's ready to get started by saying "READY" and flashing its cursor. That's a handy thing to know, actually; if we started the computer and it didn't say "READY", we'd have to figure out what was keeping it so busy that it couldn't stop to talk to us.

Now I teach a class of third graders for whom computers are as natural as recycling bins and roller blades. But when one of our computers starts doing something they don't expect, like not saying it's "READY" when it should or not loading a program, they get frustrated. All of a sudden, that familiar old machine in the corner has become a blithering idiot. Some of them will try one or two quick fixes they have seen me use before, but usually they just stand back and frown and holler, "Go get Mr. Vander Ark!" They know, you see, that I understand what the computer is saying and that I know how to tell it to get back to work.



You, of course, won't be able to use the same strategy that my third graders use; you won't be able to "go get Mr. Vander Ark." You can, however, learn for yourself how to understand what the computer says when it isn't acting the way you expect.

The folks who designed the Commodore 64 and 128 knew that you and I would often need information about what was going on with our machines, so they included a set of "error messages" into the operating system (that's the built-in set of routines and commands that run the show, as you might recall). Error messages are one of the most obvious ways the computer has to tell you what's happening. To see an example, try typing "QWERTY" at the cursor and hitting RETURN. After a brief moment, you'll see the words "SYNTAX ERROR" on the screen. That is your computer's way of telling you that it has no idea what "QWERTY" means. The words "SYNTAX ERROR" are an error message, telling you that the computer doesn't understand what you just told it to do.

I think it's fairly safe to assume that you won't usually be trying to type commands like "QWERTY" into your computer. So why does the operating system need such an error message? You'll understand that well enough the more you type commands; the most common reason for a "SYNTAX ERROR" is a typing mistake, like entering LOAF instead of LOAD. Then, instead of cheerfully loading your program as you would expect, your computer will just sit there. That's when my third graders will come looking for me. That's when you can look at the screen and see that your computer is telling you with an error message what the trouble is.

You might wonder why the computer can't just say "I'm sorry, I didn't understand that last message." As a matter of fact, there's no particular reason why it can't. The phrases the computer uses are stored verbatim somewhere inside in its memory and if you know how to program you can actually change them to say whatever you want. I can only suppose that the original designers used fancy, technical terms like SYNTAX ERROR to save memory space, since every character of the message has to be stored. The trend nowadays, however, is to make error messages a lot more informative and helpful, since most computers have a lot more memory to play with than the 64 and 128 have.

There are other error messages you might encounter as you work with your computer. Another one you will see is "OUT OF DATA ERROR," which sounds pretty alarming. Chances are, that means that you've just accidentally

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"IF WE STARTED THE COMPUTER AND IT DIDN'T SAY "READY", WE'D HAVE TO FIGURE OUT WHAT WAS KEEPING IT SO BUSY THAT IT COULDN'T STOP TO TALK TO US."

Making All the Right Connections

What's the first thing anyone does with a computer? You got it: they plug it in. Now that can be a daunting task for a first-time computer user, especially if they bought the computer used, without a manual. So here's a quick run through of what you need to do to get your Commodore computer plugged in and ready to run:

First of all, you'll want to make sure that the place you've selected for your computer has enough grounded outlets (the ones with three holes). A very handy way to take care of this requirement is to use a power strip with a built-in surge protector. Using a power strip is more than just convenient, however. It's common sense. That surge protector will can prevent a lot of problems and repairs down the road. Since Commodore equipment is scarce and knowledgeable repair personnel scarcer still, the surge protector can mean the life or death of your system. You'll also want to find a place well ventilated and relatively free of dust. A phone line is essential if you plan to do anything on line (with a modem, that is, like on the Internet or GEnie).

Once you have a place selected, you can begin hooking things up. The computer unit itself has a power pack, one end of which plugs into the wall and the other into your computer. It's a good idea to keep this power pack away from the rest of your equipment, since it could damage disks and cause interference in the monitor. The monitor, disk drives, and printer also have power cables. Plug in each of these components (with the power off to the power strip) and arrange things so that you can reach everything easily. If you want to be able to turn the whole system on at once with a switch on the power strip, make sure that switch is going to be accessible as well.

At this point, you have a whole bunch of separate pieces with no way for them to talk to each other. Let's hook them up one at a time, starting with the monitor. If you have a Commodore monitor, there are several ways that you might need to hook it up, depending on the screen modes of which your system is capable. On the back of your computer you'll find several places, often called ports, where you can plug in different sizes and shapes of cables. The small round one will let you connect your 64 or 128 to a monitor or to a television set by way of a TV/COMPUTER switch box. There are two larger round ports, one of which is for a video cable and the other for your disk drive. Make sure you don't force a cable into one of these ports; that cable might actually be intended for the other port. The 128 also includes a vaguely rectangular port which hooks the computer up to an 80-column monitor.

Once you've determined how to hook up the monitor, the rest is easy. Your disk drive connects to the computer using the other round port and that rather thick cable with the large round plug on either end. You'll notice when you look at the back of the disk drive that there are two identical ports to chose from. It makes no difference which one you use; the other can be used to run another cable on to another disk drive if you have one. Commodore printers also can be connected to your system this way, into the extra port on the back of the last disk drive in the line. Running drives linked together like this is called "daisy-chaining."

If you don't have a Commodore or Commodore-ready printer, you will need some kind of an interface to connect your computer to it. For a discussion of printers and connection options, check out the article in last month's issue of *Commodore World*.

Other devices, such as modems, RAM devices, cartridges, and so on also need to be attached to your system before you power up. Check the documentation for each device to find out how it should be installed.

There has been a friendly debate running for years in the Commodore community about the best order in which to start up your system's various components. Some people are convinced that the drives and monitor should be turned on before the computer itself; others are just as certain that it's the other way around. I personally just hit the switch on my power strip and kick everything on at once. One thing to remember: never switch on a 64 and 1541 with a disk in the drive.

-SVA

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Commodore Trivia

Reprinted from Commodore Triv #1 on the Internet, courtesy of Jim Brain, Brain Innovations.

Questions

$000 Commodore started out into computing with the PET series of computers. What did the letters P.E.T. stand for?

$001 Commodore planned to manufacture two successors to the popular Commodore 64 home computer, and both were intended to be business machines. What were these two machines originally called, and what were the differences between the two?

$002 How much BASIC free memory does a VIC-20 have (unexpanded)?

$003 What early 80's Commodore software company had a Light Bulb as a company logo?

$004 What was the model number of the disk drive used with the VIC-20?

$005 What was the model number of the cassette device used with the VIC-20?

$006 What was the model number of the printer used with the VIC-20?

$007 What was the model number of the 16 K RAM expander used with the VIC-20?

$008 Commodore introduced 3 printers that used the same printer mechanism. What are the model numbers?

$009 What is the difference between the printers in question $008?

Answers

$000 According to the McGraw-Hill Reference Guide, PET stands for Personal Electronic Translator.

$001 The 364, which among other things, had a larger Plus 4 style case that housed the regular keyboard plus a numeric keypad. The 264 turned into the Plus 4, with 64K of RAM. We'll probably never know much more about the 364, since it got scrapped.

$002 The VIC has 3583 bytes of RAM for BASIC

$003 Skyles Electric Works.

$004 VIC-1540 - Same as 1541, only faster serial speed.

$005 VIC-1530

$006 VIC 1515, which, by a miscommunication, could only use 7.5" paper. Evidently, someone thought 8.5" meant full width of paper w/perfs! This printer was quickly supplanted and overtaken by the 1525, which should own this title in the first place!

$007 VIC-1111

$008 MPS 802, CBM 1526, and PET 4023

$009 MPS 802 (Square Dots, Serial), CBM 1526 (Round Dots, Serial), PET 4023 (Round Dots, IEEE-488).

moved the cursor over the word READY before you hit RETURN. The cursor is under your control, you see, using the arrow keys, and if you move it onto a word that's already on the screen and press RETURN, the computer will assume you just entered that word as a command. That's very helpful if you want to, say, give the same command twice or if you just received a SYNTAX ERROR and you want to fix your typing. But if you hit RETURN when the cursor is on the same line as some other word, the computer will probably not know what you mean; the result will be a SYNTAX ERROR. An exception is READY, and here's why: the word READ is actually a command in BASIC, so the computer tries to READ when you tell it to, and since the READ is followed by a Y, it tries to "READ Y". It can't do it and it tries to tell you so by saying that it's out of data.

There is a list in the manual that came with your computer of all the error messages the Commodore uses. That list gives some explanations for what the errors mean as well, so it's handy to have around. Unfortunately, the writers of the manual aren't always very good at putting things into plain language, which is probably why most people don't read manuals if they can help it. For example, you might see the error message "DEVICE NOT PRESENT" when you try to load a program. The manual defines this as follows: "The required I/O device was not available for an OPEN, CLOSE, CMD, PRINT#, INPUT#, or GET#". That may be true, of course, but what it really means for *you* is that you probably didn't turn on your disk drive and so the computer can't find it... the device you wanted, the disk drive, is apparently not present.

It would be great if there were an error message on the screen every time something went wrong, but unfortunately this isn't the way it works. A lot of the errors you'll encounter as you try to load and run programs will actually not be computer problems but disk drive problems. The disk drive has its own set of error messages, but they don't appear on the screen automatically. Instead, there's a little light on the drive that just blinks on and off as a way of saying, "Hey, something went wrong!" Then it's up to you to type a command to ask the drive what the problem is. Sometimes, though, a drive problem will make your computer sort of freeze up, which means you won't see a cursor to type in anything. If you don't see a cursor, your computer is stuck trying to talk to your disk drive but the drive is not answering. You can manually tell your computer to give up the attempt by pressing the RUN/STOP key; if that doesn't work, you can press RUN/STOP and RESTORE at the same time to reset the computer.

If that fails, you'll just have to switch the computer off and back on again to clear things up.

As long as the disk drive's error light is blinking, though, an error message is being saved in a special spot in the drive's memory for you to check if you want. With the BASIC that comes built into a 128, this is a fairly simple task: you type PRINT DS$ and the message shows up on your screen. On the 64, though, things are a lot tougher. Here's the sequence you need to type in:

```
10 OPEN 15,8,15 <RETURN>
20 INPUT #15,EN,EM$,ET,ES <RETURN>
30 PRINT EN,EM$,ET,ES <RETURN>
40 CLOSE 15 <RETURN>
```

Remember, this is in the computer's language, so you have to obey all the rules and type things in exactly as you see it here. When you have typed this all in, type RUN and press <RETURN> to execute all the commands in order. The result will be a listing of all the error information on the screen.

The disk drive is one of the most important devices that you attach to your 64 or 128, so next month we'll continue this discussion from here, talking about various types of drives and how you use them. In the meantime, have fun with your Commodore!

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SPECIAL REPORT

What Lies Ahead for Commodore?

By Tim Walsh

Viewers who tuned into *CNN* on the evening of April 29, 1994, or the Sunday Morning edition of NBC's *Today* show two days later saw and heard the news about Commodore. A brief, tersely worded announcement to the *Associated Press* after the close of the stock market on April 29th bore the bad news: Commodore was liquidating. In Dickens' era, Debtor's Prison would have stepped in long before Commodore's financial whizs accumulated their enormous $350 million debt, especially with quarterly earnings of only $70-odd million to offset the heavy loss.

At long last, that same company that designed, engineered and built your beloved C-64/C-128 publicly announced it's on the verge of going belly-up. Not that it matters a whole lot—after all, they all but totally ceased to recognize their record-breaking 8-bit product line when Reagan was still President. Thank the third-party developers instead for keeping those 8-bits alive long after Commodore gave them the heave-ho. That sense of abandonment so familiar to Commodore 8-bitters is but one of the reasons they're the Commodore enthusiasts least affected by the liquidation announcement.

A Look Back...

The primary reason for Commodore's downfall is clearly their poor marketing decisions, or, more accurately, a lack of understanding the dynamics of marketing. The board of directors hidden away in New York City and the Bahamas should not be confused with Commodore Business Machines in West Chester, Pennsylvania, which performed admirably. If a company is a sum of its employees, Commodore was perhaps one of the best computer companies anywhere, one that managed to attract and fill its hallowed halls with some of the brightest, most talented people any company could hope to find.

To reaffirm that statement, a few days ago I received a call from a young lady who once served as one of *Commodore Magazine's* (remember that publication?) staff members. She later went on to work in CBM's marketing division. Laid off by Commodore long ago, she managed to land a good job at another West Chester, PA-based company, and still maintained a positive attitude about Commodore. She offered her candid opinion of Commodore—describing it as a wonderful place to work, with unabashed love for her job.

There's nothing particularly unique about her statement, as most former Commodore employees echo similar sentiments. Nearly every former employee agrees that it was the best job they ever held, and continue to maintain close contract with their former fellow employees—a true rarity in the computer industry. The talent pool at Commodore was surely something special.

What Went Wrong?

Surely, those of us close to the source saw this coming long before it arrived. For a run-down of events, I'll go back a few years to the early '90's, when my calendar was always filled with marks denoting Commodore events. There were always the exciting *CES* (Consumer Electronic Shows), the *World of Commodore* and *Ami-Expo* shows in Chicago, New York, Pasadena, Toronto, and the occasional forays to San Francisco and L.A. We were always making plans, attending special events, talking to with numerous Commodore executives. The company was going places fast, with the strong leadership of computer management whiz Harry Copperman, followed by Jim Dionne—long-time CBM President and General Manager—the future looked bright.

Commodore rapidly developed some of the greatest technology of its time. That was clearly evident at the Chicago *CES* in 1991. With one of the largest booths on the floor, Commodore packed their display with multiple third-party developers of *CDTV* titles. Those developers, under the guidance and finances of Commodore, created educational and game titles that are still timely three years later!

Riding the crest of the good years, changes were made in top management, and the surge of technology and profits hit a series of internal political roadblocks. Marketing and advertising all but ceased, and in June of 1993, Commodore Business Machines announced a massive $356 million loss, with earnings 50% lower than the previous years. *CD32*, their *Sega/NES* weapon, was not going to be ready in time for the '93 Christmas season. Worse yet, the board of directors ceased all communications with outsiders and no contingency plans were announced outlining a road to recovery.

Commodore's $350 million *faux pas* barely won them a couple of paragraphs in the Wall Street Journal. Apple easily overshadowed them with one billion dollar losses, and IBM's $8 billion in severance and restructuring costs over 18 months made Commodore's $350 million debt hardly newsworthy by comparison.

A Look Ahead...

There is a silver lining to all this bad news. For starters, don't worry about the Commodore machines going away. Too many third-party developers are interested in the technology to let it die. A Commodore Shareholders' Movement could still have an impact. There's no reason not to expect multiple, non-exclusive licensing of the technology. In layman's terms, this means you may see everything from C-64 clones to Amigas on a card in the near future. Which isn't to imply your C-64s and C-128s aren't in good shape anyway, thanks efforts by third-parties.

Other good news is that Commodore isn't liquidating in its entirety. Viewed as valuable assets in the liquidation process, income-producing Commodore divisions in Canada, the UK, and Germany look like they'll continue as on-going concerns. Getting parts for your Commodore computer may actually become easier in the future.

The constraints of professional etiquette forbids me from disclosing particulars, but suffice to say Commodore's best technical innovations were never released. There was no element of surprise for my colleagues and I when in recent weeks a number of the world's largest foreign electronics giants expressed more than just a casual interest in bidding on Commodore's technology. Wait and see—you haven't heard the last of Commodore!

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Foreign Exchange

By Joseph Gaudl

THE HILLS ARE ALIVE. WITH THE SOUND OF...PROGRAMMERS?

All right now, what's the first thing that pops into your mind when you hear the name Austria? Julie Andrews waltzing through mountain fields? Edelweiss? Downhill skiing? Mozart? Yodeling? Well, with the exception of Julie it's all here, but there's also something special for Commodore Users: C-64/128 programmers! As I mentioned in the last *Foreign Exchange*, we will be introducing you from time to time to some of the European Commodore kinsmen. In this article, Alexander Füsi and Rudi Sanda from Vienna, together with their programs for RAMLink take center stage.

Alex is a chemist with the Austrian Mineral Oil Company who enjoys writing programs in his spare time for himself and his friends. After purchasing a RAMLink two years ago, he set out to write programs which support the features found in RAMLink. His efforts resulted in two programs, a BASIC program called *RAMLink Manager* for the C-128 and a Machine Language program called *File Manager* for the C-64.

RAMLink Manager can be easily adjusted to fit your personal needs—it's basically a framework onto which you may build. By inserting BASIC commands in the program the color of the text can be altered, other programs or games can be loaded from any active device or CMD partition, the date and time can be displayed to the screen, and more. *RAMLink Manager* offers ten different time-saving functions. By pressing <F1> you switch to the C-128, 80-column mode; <F2> switches back to 64 mode. <F5> is entitled "Programs", and pressing it starts *File Manager* in 64 mode. From *File Manager's* menus you can select the program you would like to launch. Programs may be loaded from any active devices and/or CMD partitions. The remaining seven functions within *RAMLink Manager* are available

to be defined by the user.

Alex's *File Manager* is written in machine language; if you know your way around ML, you can alter this program as well. If not, you'll find the program to be useful just the way it is.

File Manager is started either automatically from RAMLink when the computer is turned on in 40-column mode or from *RAMLink Manager* in 80-column mode. The opening menu has five options: BASIC, Programs, Parameters, Manager and Info. The options are started by pressing the corresponding number key. The Parameters option allows you to change screen colors, redefine the Function keys, insert text and programs, and to save the parameters. This option, along with the Manager option, are the heart of the program. Here you can play with the different features and customize the program to your own liking.

If you're searching the market for a well thought out and uncomplicated autostart program for your C-64/128, write to Alex for his shareware masterpiece.

Austrians are proud of their contributions to the arts. Rudi Sanda, another Viennese, can be proud of his piece of art: *RAMLink Commander*. Rudi is a post office official who has a passion for details! This passion is evident in his programming. *RAMLink Commander* is a beautifully written autostart program (BASIC 7.0) for the C-128. It boasts a loader and new screen fonts which were written in assembly language.

After configuring your RAMLink for use with *RAMLink Commander* and starting the program, you'll be faced with the commander screen. From this screen you can start up to 18 functions or programs; view date and time; and perform diverse drive access using JiffyDOS commands. In each of the eighteen available function or program options, sub menus can be programmed into the option. If, for example, the option *RL/FD/HD-Jobs* is chosen, a sub menu appears offering partition, directory, sub-directory and other choices. If one of these options from the sub menu is chosen, another sub menu appears offering additional options! The program is extremely powerful and versatile.

Programmers can alter the program or insert command lines to suite their taste and needs. A complete printout of the program's code is supplied with this shareware program, so it's easy to follow the program's logic and make your own alterations.

Both Alex's and Rudi's programs come with a German handbook. Depending on the response from Commodore users in the U.S., an English program description may be released in the future. The shareware fee for either program is $10.00 plus postage, and they are available from their respective authors, listed below.

Alex Füsi
Anton Dengler Gasse 22/5
A-1210, Vienna, Austria

Rudi Sanda
Otto Probststrasse 3/68/11
A-1100, Vienna, Austria

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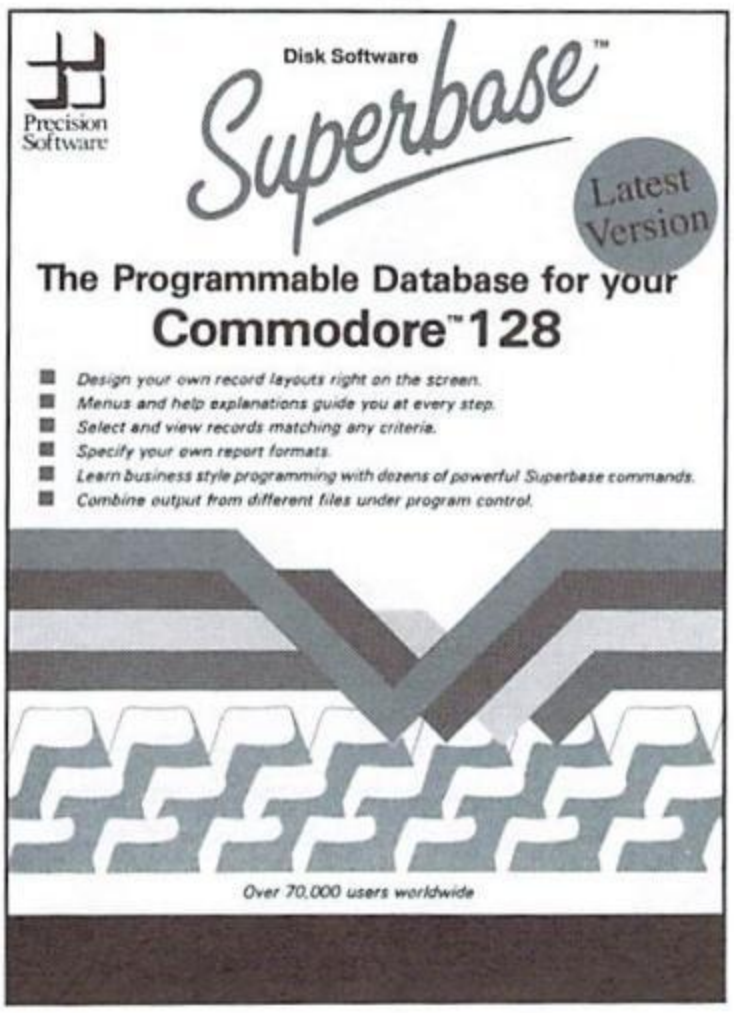
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SuperScript has everything your looking for in a professional word processor. Its menu driven command structure is easy-to-use and eliminates the need for complicated commands. Superscript includes professional style editing, spell checking, calculator, row and column arithmetic and full mail merge facilities. The phrase glossary allows you to store entire passages of text or Macro commands and recall them with a key stroke.

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P.O. Box 646
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INTERNET

Today's Information Superhighway?

By Craig Taylor

"It's been obvious for a long time that we must have an information-superhighway network that is as accessible and as open and as democratic and as ubiquitous as the telephone network that will carry vast quantities of data quickly..."
- Vice President Al Gore.

What is the Internet? What does Information SuperHighway mean? How will these affect me? Are there any benefits to Commodore 8-bit users? Read on for answers.

What is the Information SuperHighway?

There's been a lot of discussion over exactly what the Information SuperHighway is, yet many companies are saying they're already on the Information SuperHighway. They are and they aren't. One person's definition of the SuperHighway will differ from another's. Many companies that offer access to the Internet claim that the Internet is the Information SuperHighway. Right now, however, no one knows how the Information SuperHighway will come about—they just know that it is coming.

Why the uncertainty? The U.S. Government is taking the position of encouraging businesses—through special incentives—to create the data highway. Hence the bureaucracy is out of the SuperHighway creation business, yet there is still a lot of uncertainty present. Many companies are seeking alliances to promote their own ideas for the SuperHighway. Other companies are using the term *Information SuperHighway* as a buzz-word for commercialization—yet many of these companies are doing very little to help promote the actual spread of information.

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Visions of the Information SuperHighway abound, but what the highway is certain to hold is the following:

- On demand movies (you watch, rent when you want to watch).
- Expanded research queries (easily ask whether rain was falling on a certain date in a certain place, etc.)
- Easily pull up databases from various governmental and commercial sites with the touch of a key.

Since the Information SuperHighway will be built because of businesses, it's likely that electronic shopping—for everything from computer software to home appliances—will become an integral part of the pathway.

How's it going to be done?

There are a few possible scenarios currently envisioned as to how the Information SuperHighway will be created. How quickly the information can be transmitted, ease of access to the highway, and cost are all important factors. In fact, speed and cost of information transfer will no doubt govern how the Information SuperHighway is created.

The Internet (described in detail below) already offers a lot of services that the Information SuperHighway is probably going to offer. Currently available through on-line services or through educational or commercial organizations it provides a wide array of services. It has, however, suffered recently from the large influx of individuals beginning to just use it. Within the scope of the Information SuperHighway, the Internet as it currently exists would be unable to handle the strain.

Cable has also been speculated on as the means of being the information carrier. Because of the wide availability and the enormous band-range it offers, cable is an attractive choice. But because cable doesn't have the capability of receiving information from consumers in most areas of the U.S., cable companies are scrambling to develop the methods and protocols to do this.

Another possible (though less likely) carrier for the information is that of the telephone companies. The unlikelihood of this stems from the fact that current phone lines are prone to suffer from static, and lack the bandwidth necessary to carry full-time video and audio realistically while performing other tasks. Fiber-optics could help, but that technology is currently used only between long-distance locations—not between local subscribers. Replacing all the lines will be prohibitively expensive, and would take a lot of time.

What will probably happen

Although the Internet is very strong, it is lacking in numerous areas—the primary one being the ever-increasing slowdown as new users are added. In my view, cable television companies will be the information carriers, as they already have the existing bandwidth, wiring, and need to make changes only at specific line points instead of everywhere like the telephone companies. Due to the available bandwidth it's entirely likely that telephones themselves [as they exist today] will gradually fade to non-existence, with communications being shunted through the wires of the Information SuperHighway instead of the

Commercial On-line Services with Internet Access

There are numerous providers of access to the Internet. I've also listed to what degree they support the Internet. Depending on your needs you may be satisfied with just Internet mail. Remember, some of these On-line Services offer their own menus, programs and message areas. Take a look at the definitions box to see what the terms such as Gopher, Usenet News, etc., are. Before you sign up for one ask yourself what your needs are and then look at the services offered by each.

America Online: 1-800-827-6364 ext 8856; $9.95 monthly, $3.50 hourly. No Telnet, FTP access. Does have Gopher, Usenet News.

CompuServe: 1-800-848-8199, $8.95 monthly for unlimitied basic services. $8 to $16/hr depending on speed. Internet mail only.

Delphi: 1-800-695-4005; $10 monthly, $4.00 hourly. Full Internet access.

GEnie: 1-800-638-9636; $8.95 monthly with 4 hrs free, $3 - $12.50 hourly. No telnet access. Supports FTP via shell. Internet mail access.

Prodigy: 1-800-776-3349; $14.95 monthly, $3.60 hourly. FTP, mail access.

The WELL: 1-415-332-4335; $15 monthly, $2 hourly. Full Internet access.

Glossary

Definitions of some of the terms you'll see used while exploring the Internet

BBS - Standing for "Bulletin Board System" this indicates a network or service which can be accessed via use of a modem and a terminal program on your computer.

Commercial Service Providers - These systems are what might be considered to be "commercial BBS's." They offer message bases and file libraries covering a wide range of subjects and interests. In addition, they offer more specialized services, such as access to on-line stock information, and airline reservations. A vast number of users may access these services at the same time.

E-Mail - Stands for "Electronic Mail" and indicates messages that are left on a computer system for another user to later read.

FTP - Stands for "File Transfer Protocol" - This is a method whereby Machine A can log in to Machine B and "get" certain files.

Gopher - Is a menued information system that also supports obtaining files, sounds, text, and graphics; sort of a multimedia retrieval system.

Modem - Standing for "MOdulator DEModulator" it allows a computer to communicate to another computer over normal telephone lines.

News groups - Areas where messages pertaining to a specific topic can be read from or written to. These are generally accessible by a large group of people.

Telnet - A method that allows an individual to gain access to another computer for the purposes of getting or sending information. Internet BBS's, Games, and other services usually work via Telnet.

Telecommunications - The process of exchanging computer data over the telephone lines.

Usenet News - Represents the vast array of newsgroups available through the Internet. Currently over 3000.

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regular phones. For those of you without cable, like myself, consider getting it soon.

On To The Internet

Getting back to the Internet, let's take a look at what it's currently capable of, and what it may offer to you.

Defining the Internet isn't quite as easy as explaining how it works, though phrases such as 'controlled anarchy' come to mind in trying to think up something to describe this global network.

Imagine one computer. Now, take that computer and hook it to another. And then another, and another and another and another until you're out of breath repeating "and another." After you've imagined all those computers linked together to form one huge network, imagine it on a global scale from Antarctica to the U.S. to New Zealand to Austria to Switzerland to Russia to Mexico to the Netherlands. This is the Internet.

With a network of this size there are numerous services for practically any hobby or interest. There are people to answer your questions; mailing lists, and news-groups on an ever-growing number of topics. Many systems also support what is known as FTP or GOPHER, which allow you to access their site to obtain programs.

For those of you already involved with telecommunications and BBS'ing, the Internet is similar to one large gigantic BBS with unlimited time, numerous message areas and free downloading.

Originally implemented in the early '70s by the Department of Defense to implement a system that could transmit messages across the nation in a national emergency, the Internet has grown by leaps and bounds. Universities worked with the Department of Defense on the project and they have since used the Internet to provide a vast array of educational resources. More recently, commercial companies have placed themselves on the Internet.

Because of the educational aspect of the Internet, and because it's governed by no single body but by "organized chaos" (which works surprisingly well), there exists several interesting and unique areas on the Internet where items such as a list of smiley faces can be found.

Smiley faces are a group of characters that need to be looked at side-ways to see what they are. Some common ones are:

:-) (Grin)
:-) (Smile)
:-((Frown)
8-o (Shocked)

In addition to smiley faces (there's a large list of them available) there's a "cow list" (similar to smiley faces except for cows—yes, the Internet is unique at times).

Mail on the Internet is called E-Mail, which stands for Electronic Mail. Regular U.S. Mail is often referred to as "Snail Mail" or "S-Mail", because of the length of time it takes compared to E-Mail. Typically a message from California to Virginia should only take 10 minutes at most—often times it arrives almost instantaneously. I've had messages from someone in Australia in my mail box only 5 seconds after being sent! With mail you can communicate with people in other states and countries; and the smiley faces above, plus other expressions such as *hugs* in asterisks

Accessing The Internet: A Sample Session

The following is a sample FTP session showing how easy it is to get files. I've included comments in parenthesis beside each of the commands I've made to better explain what I'm doing.

```
_ftp ccnga.uwaterloo.ca_                    (This is what I typed and how I connected:)

220 ccnga FTP server (Version 5.2 Thu Mar 31 16:31:53 EST 1994) ready.
Connected to CCNGA.UWATERLOO.CA.
Name (CCNGA.UWATERLOO.CA:duck): _anonymous_   (Now it wants me to enter a name.)
                                              (Anonymous is fine on most systems)
331 Guest login ok, send ident as password.
Password:                                     (Here I gave it my email address)
230 Guest login ok, access restrictions apply.
FTP> _cd pub_                                 (I want to go into the PUBlic directory)
250 CWD command successful.
FTP> _dir_                                    (Let's see what's available)
200 PORT command successful.
150 Opening ASCII mode data connection for /bin/ls.
total 5
drwxr-xr-x 22 184    0      512 Apr 25 20:59 cbm
drwxrwsrwt  2 0      0     1024 Apr 28 21:31 incoming
drwxr-xr-x  4 67     0      512 Jan 11 14:43 jpblack
drwxr-xr-x  2 200    0      512 Mar 30 16:00 rcgood
drwxr-xr-x  5 106    0      512 Mar  1 12:56 wireless

226 Transfer complete.
321 bytes received in 00:00:00.25 seconds
FTP> _cd cbm_                                 (Hmmm, the CBM directory looks good)
250 CWD command successful.
FTP> _dir_                                    (Let's do another directory to see what's available)
200 PORT command successful.
150 Opening ASCII mode data connection for /bin/ls.
total 97
-rw-r--r--   1 184    0     5331 Apr 25 20:58 00README
drwxrwxrwx 23 184    0      512 Apr 25 20:59 INCOMING
[. . . ]
drwxr-xr-x  3 184    0     1024 Mar 27 06:44 util128
drwxr-xr-x  4 184    0     1024 Apr 25 21:18 util64
drwxr-xr-x  2 184    0     1024 Mar  2 02:28 vic-20

226 Transfer complete.
1403 bytes received in 00:00:01.37 seconds
```

(continued in sidebar on page 25)

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help to give the conversation a more "human" feel, creating a form of personality punctuation.

Also available are what are known as *News Groups*. These are areas where discussions concerning a wide range of social, political, science, computer and educational topics can be carried on. Two groups for Commodore 64/128 users are **comp.sys.cbm** and **comp.sys.binaries**.

Comp.sys.cbm is the primary news group for the Commodore 8-bitters and discussions cover such topics as help in diagnosing repair problems, programming, individuals selling related items, the latest news and rumors, and a whole lot more.

Comp.binaries.cbm is a news group that posts programs and files of interest to the Commodore 8-bit community. These are first converted to text from their binary equivalent through a process called *uuencoding*, so that they can easily be posted just like a message. Thus, a user can 'capture' this text and save it, then convert it back into a binary program through *uudecoding*.

With over 3000 topics to choose from in addition to these two, it's very easy to get hooked on using the news-groups.

Another way of getting information is from E-Mail servers, which are special programs that will send files and/or messages to you automatically. From Email servers you may request certain files; catalogs of programs that are available for request; send messages to be distributed to other individuals, and subscribe to mailing lists for news items.

The only E-mail Server specifically designed for the Commodore computers is one run by the author. Its major intent is that of distributing the free Commodore Hacking magazine as well as programs that are in the magazine. To get help on how to use it, send a message to the author in the following format:

To: duck@pembvax1.pembroke.edu
Subj: MAILSERV
Body of message: HELP

This specific mailserver is operated twice a day, so you should receive a reply within approximately 12 hours. Please be sure to have a subject line of "MAILSERV". If anyone knows of any other Email Servers existing for the Commodore computers please let this author know (I'm interested!).

FTP stands for File Transfer Protocols and is a method of obtaining programs that are stored on another system's computers. There are numerous FTP sites out there in Internet land. One of the best currently available for the Commodore computers is operated by Craig Bruce at ccnga.uwaterloo.ca. There are literally millions of files available for downloading via FTP.

Gopher is a fairly new method of obtaining information on the Internet. It allows an individual to follow a series of menus to reach the appropriate file (or groups of files) for the subjects the user is interested in. It links information from many different computers together in a somewhat ordered method. If you wish to find something on say, the latest speech by President Clinton, then you'd probably look under government agencies, then look under press releases and eventually through this process of narrowing things down you'll find a list of his speeches.

Accessing Internet

Sounds great you say, but how do I join up? There are a number of ways. Some colleges and universities offer free Internet access to their students and faculty, or charge a (hopefully small) computing fee. Many commercial on-line services provide some form of Internet access. Local BBS's may also hook up to the Internet—this is typically done for access to news groups and E-Mail.

Some of the commercial on-line services providers are listed in a sidebar along with some of the Internet services they provide. Which one is best for you depends on what you want to use the Internet for. Regardless of how you do it, I highly recommend getting on the Internet!

Accessing The Internet: A Sample Session

(continued from page 24)

```
FTP> _cd util128_                          (Ah, it listed a lot. Let's look in UTIL128)
250 CWD command successful.
FTP> _dir_                                 (And again a dir to see what's available)
200 PORT command successful.
150 Opening ASCII mode data connection for /bin/ls.
total 511
-rw-r-r-    1 184     0        57 Mar  2 03:35 00README
drwxr-xr-x  2 184     0       512 May  5  1993 DISK
-rw-r-r-    2 184     0       420 May 24  1992 crc32a
-rw-r-r-    2 184     0      1203 May 24  1992 crc32a.doc
-rw-r-r-    2 184     0      3218 May 24  1992 crc32a.s
-rw-r-r-    1 184     0      3072 Mar 23  1993 filetype.128
-rw-r-r-    1 184     0     25389 Mar  9 18:42 lrr200.asm
-rw-r-r-    1 184     0     25463 Mar  9 18:39 lrr200.doc
-rw-r-r-    1 184     0     28917 Mar 14 17:31 lrr200.sfx
-rw-r-r-    1 184     0     16679 Mar  9 18:41 lrr200.uua
[ . . . ]
-rw-r-r-    1 184     0    22000 Jun  4  1993 zed-128-077.sfx
-rw-r-r-    1 184     0    38193 Feb 18  1993 zed077.uua

226 Transfer complete.
2222 bytes received in 00:00:02.39 seconds
FTP> _binary_                              (The LRR looks interesting. Let's tell it we
                                            want it in BINARY instead of ascii. Otherwise
                                            it would mess up the transfer)
200 Type set to I.
FTP> _get lrr200.sfx_                      (Now we "get" the file)
200 PORT command successful.
150 Opening BINARY mode data connection for lrr200.sfx (28917 bytes).
226 Transfer complete.
local: LRR200.SFX  remote: lrr200.sfx
28917 bytes received in 00:00:10.66 seconds
FTP> _exit_                                (And tell the computer we're finished).
221 Goodbye.
```


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HARD TIPS

OUR TOP HARDWARE EXPERT DETAILS SOME SIMPLE FIXES

By Mark Fellows

Almost everyone has had it happen at least once. Nearly everyone has had it disappear mysteriously. It tends to reappear when you least expect it, or at the worst possible time. Reminds you of acne, doesn't it? Fortunately, your computer is not likely to have skin problems, but it can come down with a number of minor 'illnesses' that can be hard to diagnose and even harder to repair. In this issue we'll concentrate on the sometimes deceiving problems related to the Cartridge Port.

When a Cartridge Port device (RAM expander, utility or game cartridge, etc.) fails to work properly, the first instinct is to blame the device itself as being defective. If the device is covered under warranty, you will probably call the manufacturer and arrange to have the 'defective' unit replaced. If the manufacturer does not offer any troubleshooting advice and simply agrees to take the unit back, you are most likely in for a surprise in the near future. What kind of surprise? Well, if your 'defective' unit is like most others you will probably receive notification that the unit was not really defective at all! In this instance, most companies will send the same unit back to you, and some will charge you for the return postage and/or their time to evaluate the perfectly good device. In any case, you will most likely be right back where you started - with a device that does not work with your computer.

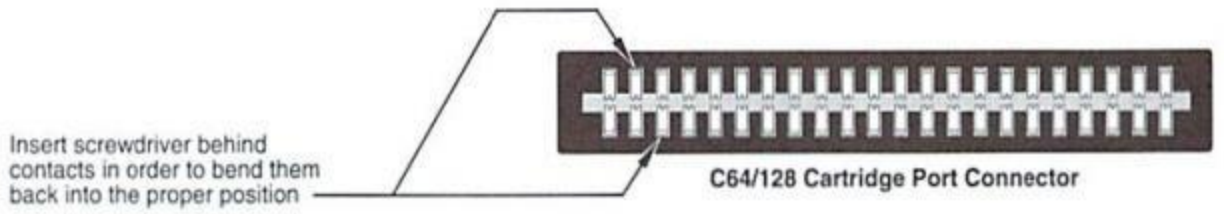
At CMD, we have found that over 90% of the problems that users report with our Cartridge Port devices (RAMLink, SwiftLink, SID) are actually the fault of the computer and not the device itself. Most computer-related problems will cause one or more of the following symptoms to appear:

Typical Symptoms: Device plugged into the Cartridge Port does not work or works intermittently; computer does not work with the device plugged in; device causes computer to reset, lock up, or act strangely - generating garbage or incorrect characters on the screen, and possibly corrupting disks or files.

The good news is that most of these problems can be solved by the user if a few simple troubleshooting procedures are applied. The causes and corrective procedures we give you in this article apply to all Cartridge Port devices, and should work regardless of the type of device that you have.

Causes and Corrective Actions

1. *Bent, loose or dirty Cartridge Port connector contacts.* Poor connections account for nearly all Cartridge Port problems. The Cartridge Port connections must make tight contact with the device to ensure proper operation. A single bent contact in the connector is enough to cause any device to either fail completely or operate intermittently. In any case, it is always good practice to take a jewelers screwdriver and bend all contacts on the connector slightly so that they will make tighter contact with the device. Refer to the diagram below:



C64/128 Cartridge Port Connector

The contacts in the computer's Cartridge Port connector and in the device can (and should) be cleaned using an electrical contact cleaner available at Radio Shack stores and other electronic supply houses. An aerosol type is best for reaching the contacts inside the Cartridge Port.

2. *Weak or intermittent computer power supply.* The number two cause for all sorts of unexplained computer problems. Occasionally, a faulty or old and 'tired' C-64/128 power supply will be adequate to power the computer by itself but will not be able to provide enough power to operate the additional circuitry of a cartridge port plug-in device. In such cases, the easiest way to isolate the problem is to try your computer with another power supply.

Note: C-64's and 64C's were not designed to power Commodore REU's (1700, 1764, 1750) without the help of a heavy-duty power supply, whereas the C-128 and 128D can handle the added load of the REU without the need for a beefed-up supply.

3. *Faulty 'PLA' (or other chip) in computer.* An otherwise healthy and properly functioning computer may have a faulty chip that only affects the operation of the Cartridge Port. The PLA is almost always the culprit in these cases. If possible, try your Cartridge Port device on another computer to help isolate the problem.

Note: Determining which particular chip is at fault may require the help of an experienced technician. Replacing the faulty chip can also be difficult for the average user as it may involve soldering.

4. *Dirty or corroded computer power switch.* A faulty switch may not deliver adequate +5V power to the Cartridge Port connector, thus affecting the Cartridge Port device. Again, the best way to try to isolate the problem is to try the device on another computer.

Note: Determining whether or not the switch is at fault may require some specialized instruments. We recommend you obtain the help of a technician to troubleshoot at this level and to replace the soldered-in power switch if it is in fact at fault.

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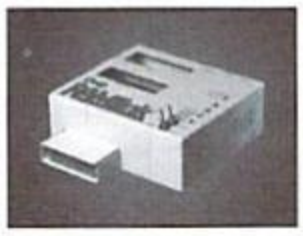

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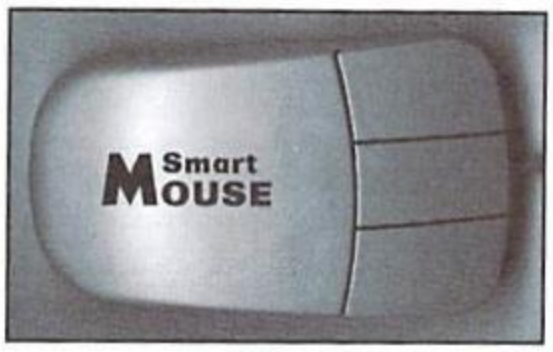
CMD Releases Revolutionary New Mouse



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What Makes the SmartMouse the BEST C-64/128 Mouse Ever...

- **Three buttons means convenience! If you're a GEOS user, the left button is configured as single click, the right as a handy double click and the center button is the TURBO button. When depressed, it doubles the speed at which the mouse moves across the screen. Additionally, programmers can assign their own functions to all three of the SmartMouse buttons.**
- **Unlike other third party mice, the CMD SmartMouse uses the same custom gate array chip as the Commodore C-1351 mouse. This guarantees 100% compatibility with existing software and hardware.**
- **Switches easily into joystick emulation mode on power-up by holding down the right button.**
- **SmartMouse utilizes the same advanced mouse technology used in today's powerful 486 and Pentium-based PC's, providing you with unparalleled accuracy and smoothness of operation.**
- **Built-in battery-backed Real-Time Clock automatically sets the GEOS clock, displays time and can be used in your own programs.**
- **SmartMouse is supplied with utilities disk and detailed manual explaining the utilities and programming information.**
- **Attention Lefties! You're going love the SmartMouse! With a simple modification outlined in the manual, you can alter the SmartMouse for left handed use. (Or for a small fee CMD will customize your mouse for you).**
- **Built-in Configuration RAM allows for future enhancements.**

CMD 2+1 Cartridge Port Expander

Previously produced by Skyles Electric Works and recently acquired by CMD, the 2+1 Cartridge Port Expander provides two vertical and one horizontal expansion ports for the C64 and C128. Each port is equipped with four individual switches to control the +5, GAME, EXROM and ROML signal lines for utmost flexibility and compatibility. This tried and true system has been helping Commodore users get the most from their computers for years. For extra safety, the 2+1 is fuse protected and provides a convenient reset switch.

The 2+1 is great for using SwiftLink, SID Symphony, Super Snapshot, REU's, GEORAM or almost any other cartridge that you may have. By using the 2+1, you eliminate wear and tear on your computer's cartridge port caused by frequent use. Contact CMD for more information regarding compatibility and applications for the 2+1 cartridge.

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IN REVIEW

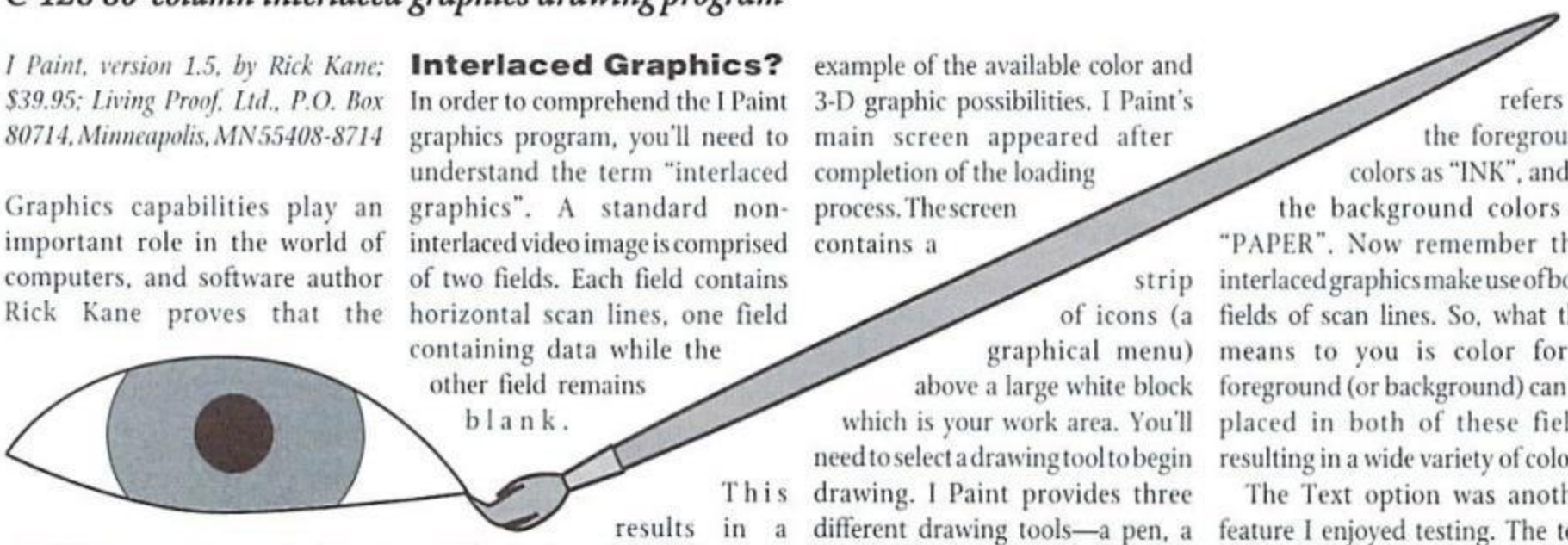
I Paint

C-128 80-column interlaced graphics drawing program

I Paint, version 1.5, by Rick Kane; $39.95; Living Proof, Ltd., P.O. Box 80714, Minneapolis, MN 55408-8714

Graphics capabilities play an important role in the world of computers, and software author Rick Kane proves that the capabilities of our much loved Commodore computers are almost endless. Imagine having access to 4,000 colors from a possible 65,536 colors! Imagine a resolution of 640 X 400 pixels! And last, though certainly not least, imagine being able to use these capabilities with your very own, low cost, Commodore computer! Living Proof, LTD., presents I Paint; a graphic artist's dream come true!

I Paint requires a Commodore 128D or a Commodore 128 upgraded to 64K of video RAM, a graphics printer (if you want to print your creation), a 1351-compatible mouse, a 1541 or 1571 compatible disk drive, and a RGBI color or 80 column monochrome monitor. Support is also provided for the following peripherals: Commodore 17xx series REU's, 1581, CMD RAMLink, CMD HD and FD drives, and color printers such as the Star NX-1000 and NX-2400 color printers and Okimate 10 and 20 printers.



Interlaced Graphics?

In order to comprehend the I Paint graphics program, you'll need to understand the term "interlaced graphics". A standard non-interlaced video image is comprised of two fields. Each field contains horizontal scan lines, one field containing data while the other field remains blank.

This results in a graphics display with a resolution of 640 X 200 pixels. However, in an interlaced graphics video image, both fields contain data. The scan lines of one field appear between the scan lines of the second field, producing a combined resolution of 640 X 400 pixels.

Alas, this additional resolution doesn't come without side effects—interlaced graphics produce a flickering effect on your screen. Flicker is a result of the first set of scan lines fading out as the second set are interlaced. Fortunately, there are ways to lessen the effect. The I Paint manual suggests wearing a pair of sunglasses. However, if you feel a bit silly doing this, the method I use is to work in monochrome mode until I actually need to work with the colors for my creation.

Getting Started

I Paint required approximately 4 minutes to load on my 1571 disk drive, but it was certainly worth the wait. The title screen gives a fine example of the available color and 3-D graphic possibilities. I Paint's main screen appeared after completion of the loading process. The screen contains a strip of icons (a graphical menu) above a large white block which is your work area. You'll need to select a drawing tool to begin drawing. I Paint provides three different drawing tools—a pen, a brush, and a spray can. Selecting a drawing tool is as easy as pointing to your choice and clicking a mouse button. Once you've chosen your preferences you'll be whisked into I Paint's work area. Drawing is as easy as moving the transparent arrow to the desired area and clicking the "ON" button on your mouse. The arrow then disappears and you may begin drawing by moving your mouse. To lift your drawing tool from the paper click the "OFF" button on your mouse. The arrow reappears allowing movement to a new area in the work space. A second click on the "OFF" button returns you to the menu.

Options

I Paint's options are too numerous to discuss at length here, so I will move on to a few of the more interesting options. I had fun experimenting with all of the available colors in the Palette feature. A click on the Palette icon reveals a submenu for selecting colors. I Paint refers to the foreground colors as "INK", and to the background colors as "PAPER". Now remember that interlaced graphics make use of both fields of scan lines. So, what this means to you is color for a foreground (or background) can be placed in both of these fields resulting in a wide variety of colors!

The Text option was another feature I enjoyed testing. The text option provides a selection of six fonts, plus the system font, plus a loadable custom font. Selecting the System Font grants the use of the Commodore Uppercase and Graphics character sets. I Paint possesses some very potent text possibilities. Text may flow in one of any four directions. You simply select the direction you wish for the text to advance and type. It's as easy as that. The text may be re-sized by pressing the "ON" button while in the drawing screen. Doing so generates a "sizing box" in the work area. The text is sized by dragging this "sizing box" to the desired dimensions. I Paint provides some pretty powerful priority options for use with text. One of these features, the "WITH" option, allows text to be superimposed on top of the current image creating a 3-D effect. A few of the other text options permit text to be underlined, flipped, reflected, rotated, unrotated, colored, and reversed. The function keys may even be redefined as

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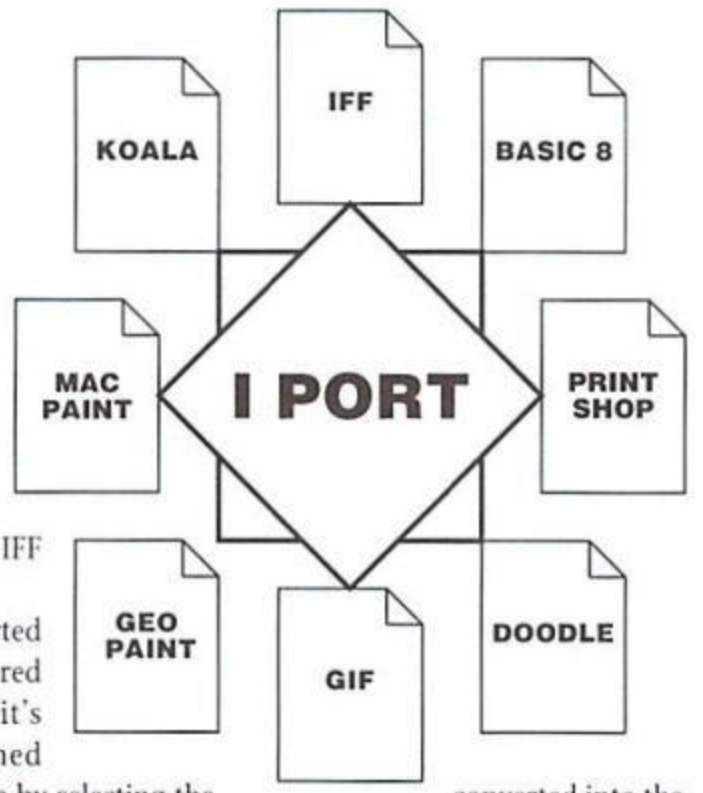
IN REVIEW



I Port

C-128 graphics conversion utility

I Port, version 1.54, by Rick Kane; $29.95; Living Proof, Ltd., P.O. Box 80714, Minneapolis, MN 55408-8714

Living Proof, Ltd., compliments the I Paint program with I Port, a graphics manager program which can be used to convert graphics files for cross-platform compatibility or for editing.

Port-Ability

I Port is every bit as powerful as it's counterpart as it grants the user the ability to import Amiga IFF, KOALA, GIF, MACPAINT, GEOPAINT, BASIC 8, uncompressed DOODLE, and PRINT SHOP graphic file formats; convert any of these to I Paint format; and export I Paint images as GIF (Graphics Interchange Format) files.

I Port's main menu is very straightforward. The menu lists the eight available import options as well as the export option. A selection is made simply by scrolling down the menu and highlighting a choice and hitting the return key. The appropriate conversion module is loaded once a graphics format has been selected.

A graphics file must first be opened before it may be imported into I Paint. By switching the monitor to 40 column mode, Doodle graphics files may be viewed as they are loaded. A color table is provided allowing the colors used by I Paint to be compared to the colors used by Doodle. Color tables are also provided for use with GEOPAINT files. Amiga IFF and GIF colors are adjusted with I Port's powerful Palette Equalizer. The Palette Equalizer permits the redness and brightness of colors to be adjusted by entering numbers for degrees for grey, color, and bright color. Once the equalizer settings have been set they can even be saved to disk for future use.

A Cut and Paste feature may be used with Doodle pictures, allowing any size portions of the Doodle's 320 X 200 source screen to be cut and carried over to I Port's 640 X 400 destination screen. I Port also allows you to adjust the width and height of Amiga IFF and GIF images.

After the imported file has been altered to satisfaction, it's easily transformed into an I Paint file by selecting the *Save I Paint* option. Once this has been accomplished, it may be loaded into I Paint and modified the same as any other I Paint file.

I Port's export option transforms any I Paint picture into a GIF file. Author Rick Kane has thoughtfully provided five levels of compression for saving GIF files to disk. A value of one will produce the largest file but will save the file in the shortest amount of time. On the other hand, a value of five creates the smallest file but requires a much longer conversion time. The GIF export feature provides the user with endless possibilities as files in the Amiga IFF, MAC, GEOPAINT, BASIC 8, KOALA, DOODLE, and PRINT SHOP formats may all be converted into the I Paint format and then to the popular GIF format.

All of the above listed features create a powerful companion for the I Paint program. I Port comes complete with documentation which can easily fit into the I Paint manual. The addition of a few more examples and details pertaining to I Port's color editing features would help the novice user tremendously. But the manual is sufficient to allow users to be up and running with all of I Port's other features. I Port, in combination with I Paint, present Commodore 128 users with an almost unlimited resource of powerful graphic tools.

- Sherry Freedline

I Paint *(continued)*

suitable macros for those creations requiring repetitive lines of text.

Packed with Power

All of I Paint's options blend together to form a very powerful graphics program. But that's not all! Author Rick Kane has included several significant file features as well. The LOAD feature permits BASIC 8 and LACEMAKER files to be loaded into I Paint's work area, opening up a whole new world of opportunities. Patterns and Clips can also be stored and loaded for future use. With the SAVE feature, I Paint pictures can even be saved in a Lacemaker format for use with "Lacemaker 128 - The Interlace Utilities Workshop".

Of course, after the picture has been saved to disk, hard copy is a must. I Paint's printing features enable you to specify a print density as well as a height specification, though the ability to employ these features is dependent upon the capabilities of your printer.

Rick Kane began the I Paint project in the summer of 1988, and has continued to improve and support the program since its release. One can clearly see that a lot of thought has been placed into this program. I Paint even provides for right and left handed mouse users. The Setup Menu allows the mouse to be customized to the user's liking. The manual packaged with I Paint is a very nice spiral bound booklet. The documentation goes into great detail with all of the many available options. I Paint is an asset to the novice, as well as the skilled computer artist.

- Sherry Freedline

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IN REVIEW

SmartMouse

C-128 80-column interlaced graphics drawing program

SmartMouse; $49.95; Creative Micro Designs, Inc., P.O. Box 646, East Longmeadow MA 01028.

You know, I've written a lot of reviews over the last few years, for both RUN Magazine and for Compute. The first review I ever wrote was of Gateway, Creative Micro Designs' file manager software for GEOS. Since then, I've reviewed a number of other CMD products and written several articles about using CMD's RAM devices. I may be no ace programmer and I'm certainly no technical wizard, but I feel like I'm pretty competent to write about yet another of Creative Micro's products, the SmartMouse.

But this review is different from the others I've written. It's is being written not for RUN or for Compute, but for Commodore World, a magazine put out by Creative Micro Designs itself. In other words, I'm being paid by CMD to write a review of one of their own products. Sounds pretty fishy, doesn't it? Kind of like a conflict of interest.

But no, I'm not planning to step down, thank you very much. After all, I need my paychecks, same as anyone (maybe more). I also need the mouse, but more about that later. I did worry a little that readers might not take this review seriously under the circumstances. So what I *am* planning to do is give a good, solid review, pulling no punches and telling it straight, even if that means biting the hand that feeds me a little bit. To be honest, that's the only kind of review that CMD would want me to write, anyway.

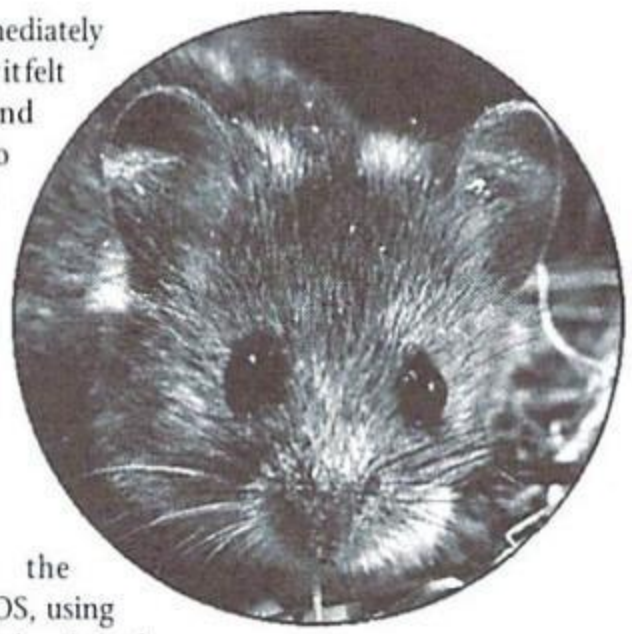
Missing Mice...

That said, let's get on with it; let's talk about the mouse for the Commodore computer. As many of you know, lately there hasn't been anything to talk about in that department. There simply was no mouse available for the Commodore 64 or 128, and that was that. The 1351 and the M3 were no longer being made and all supplies were soon depleted. Wouldn't you know it, my trusty 1351 went belly up on me shortly thereafter, leaving me back in joystick mode. For a GEOS aficionado like me, that was sheer misery.

Now let's face it, the Commodore market isn't exactly booming these days. When Tenex and others sold the last of their stock of 1351's and M3's, most Commodore users figured that spelled the end of the 64/128 mouse. They weren't figuring on CMD, which stepped in and saved the day. The SmartMouse has just been released, and for me, it came in the nick of time. I was delighted when the package from CMD showed up on my doorstep. The box contained the three-button mouse, a disk of utilities (slightly bent), and a manual.

Looking Smart

The SmartMouse is about two-thirds the size of my old 1351, and is light gray in color (my 1351 is more of a light beige). When I took it out of the box, I was immediately impressed with the way it felt in my hand: solid and heavy, like it was built to last. The three buttons depress with a firm click, adding to the impression of quality construction. This is definitely not a cheap mouse.



Test Drive

I first tried the SmartMouse with GEOS, using the 1351 input driver I already had. The mouse worked beautifully, gliding effortlessly around the mouse pad. I used it in geoWrite and geoPaint and was very pleased with the smooth motion and the comfortable feel. Again I realized that this was definitely not a cheap mouse.

After spending an enjoyable time messing around in geoPaint and then playing solitaire, I figured it was time to get serious: I opened the manual. As is usually the case with CMD products, the documentation was very complete and easy to understand. All the various features of the mouse are carefully described. I discovered, for example, that new and improved GEOS mouse drivers made specifically for the SmartMouse were included, and the documentation clearly explains how to install them on a GEOS boot disk.

I followed the installation instructions and switched to using the new 128 driver, which is included along with the 64 version on the utilities disk. Once I had done this, several additional functions were available to me as I cruised around GEOS. The right mouse button now "double-clicked" with only one press of the button. I discovered that I had to make that one click just a little slower than usual for the double click to happen, but once I got the hang of it I started to find lots of uses for that easy double-click besides just opening files on the deskTop. Using it on the brush tool in geoPaint, for example, neatly brings up the brush selection box.

The middle button, a first for any Commodore mouse, has been programmed with those new GEOS drivers to activate something called "turbo mode." In "turbo mode" the pointer zips across the screen almost instantly, which is very handy when you need to, say, set margins first on one side and then way across on the other side of a page in geoWrite.

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SmartMouse *(continued)*

As if that weren't enough to earn this mouse its name, it also includes a real-time, battery-backed clock. By including a simple autoexec file on your GEOS boot disk, you can automatically set your GEOS clock every time you boot up. The program you need is included on the disk, of course, and full instructions for using it are included in the manual.

Compatibility

The manual claims that the SmartMouse is fully compatible with any software that supported the 1351 mouse. So I left GEOS to check out that claim. There aren't many programs besides GEOS which support the mouse, but there are a few. I dug out my copy of FlexiDraw, which supports not only the joystick and mouse but also the Koala Pad and light pen as well. I found that the program worked just fine with the SmartMouse.

In order to use the SmartMouse with other software packages, I had to switch the mouse into joystick mode by holding the right button down while booting up the computer. In this mode, I used the SmartMouse to draw in Doodle, which makes that program much more fun to use, in my opinion. I also played a few events of Summer Games, but I discovered that for games like that a joystick is actually a better choice. Then I broke out my stack of shareware disks and started playing various games. Every single one worked perfectly with the mouse. Some, like Summer Games, were easier to play using the joystick itself, but that's not the fault of the mouse.

Besides the GEOS utilities on the disk that comes with the mouse, there are several other goodies. One is RUN Paint, a full-featured paint program which nicely supports the mouse. This program gives a user plenty of graphics power and it's included free on the disk. A simple but well-designed clock-setting utility is also included.

If you are the hacker type who understands things like "command byte bit assignments," you're in luck. The manual provides all the information you need to access and command the inner workings of the SmartMouse yourself. A number of mouse driver routines are included on the disk, ready to be used in your own programs to support the SmartMouse. Left-handed users can adjust the SmartMouse to work in reverse of the standard mode (the right button becomes the left and so on). This procedure is outlined very clearly in the manual along with a picture.

All in all, the SmartMouse from Creative Micro Designs is an excellent product. It is well constructed and performs very smoothly. The documentation is very understandable and extensive. The utilities disk provides GEOS support, programming support, and even RUN Paint. Even if there were more than one mouse around to choose from, I would still recommend the SmartMouse.

And, no, CMD isn't just making me say so.

- Steve Vander Ark

MINIVIEWS

by Commodore World Staff Reviewer Sherry Freedline

Chomp!

(Cosmi)

Great sharks alive—it's Chomp from Cosmi! Chomp places you in the role of a fish where you must master the art of survival in a world swarming with voracious aquatic creatures.

Life begins in a fish bowl environment free of predators. In the fish bowl you must feed on worms as they are disbursed from the decorative castle. It's not as easy as it sounds as the worms will provide you with a challenge by swimming at odd angles. Lack of food will shrink you down in size until you are too small to survive. Another key factor to survival is to keep yourself in motion to provide yourself with an adequate supply of oxygen. Lack of oxygen will turn you blue and eventually result in death.

You will eventually increase in size once you have consumed enough worms. You are now ready to venture into the tank next door. To travel to the adjacent aquarium make a quick run for the top of your fish bowl and jump into the neighboring aquarium. Your new home will provide you with a larger environment containing predators and prey of various sizes. You are now able to devour fish and insects along with worms. But keep in mind, you are also prey! For kicks you may want to venture to the top of your aquarium where you will be quickly scooped up by a giant cat paw. The screen will then change to allow you to watch as your life "flushes" before your very eyes. Each successive level in Chomp takes you to a new and bigger water world full of even bigger opponents.

Chomp requires a joystick for gameplay. Your fish swims smoothly and responds rapidly to your requests. Your adventure is accompanied by a very fitting suspenseful tune. You will find the graphics quite captivating from viewing a bony blue fish to the ever unforgettable shark!

Chomp is one of those games for young and old alike. Each successive level in Chomp takes you to a new and bigger water world full of even bigger opponents. You'll find it hard to tear yourself away from this underwater world.

The Three Stooges

(Cinemaware)

The Cinemaware Corporation has done an outstanding job of bringing the Three Stooges to life in a game for the Commodore 64. The introduction to the game is truly a spectacular graphics delight as you are treated to a richly detailed frame straight out of one of the many Three Stooges film shorts. Cinemaware has topped the game off with a fantastic assortment of digitized speech and sound effects including my all time favorite "nyuk, nyuk, nyuk!"

The opening screen reveals our beloved Stooges out for a stroll in Stoogeville. Upon hearing a disturbing sound, they rush to investigate the origin. The trio discover Ma sobbing in despair over the fact she must produce $5,000 in thirty days to prevent foreclosure on her orphanage by the evil banker, Mr. I. Fleecem. The Stooges vow to help Ma raise the funds and the game begins! The game resembles a board game as the threesome stroll along Stoogeville's one-way street accommodating 180 locations. Larry, Curly, and Moe wander through town working in various off-the-wall positions including: boxing, pie throwing, cracker eating, trivia, hospital racing, and slapping. My favorite event was a toss-up between guiding the Stooges through a crowded hospital corridor in midget race cars and participating in a pie tossing brawl at a very eloquent dinner affair. If you're a very skilled Stooge-a-maniac you may even earn enough money to marry the Stooges off to Ma's lovely daughters Mary, Leona, and Cynthia!

The Three Stooges Movie requires the use of a joystick. A little practice time may be required to master control of the joystick. The manual packaged with the game provides a fascinating history of the Three Stooges. Cinemaware did an excellent job of fashioning the game in the style of a typical Three Stooges film short. Each event is heaped with laughs resulting from various digitized speech clips and sound effects acquired directly from their film shorts. This is one game Three Stooges fans *coitainly* cannot do without!

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Graphic Interpretation

by Steve Vander Ark

A FUNNY THING HAPPENS TO STEVE ON HIS WAY TO WRITING HIS COLUMN

When the editor of this magazine asked me to write a column about GEOS, I'm sure he was expecting something very solid and no-nonsense from me—something useful, if you will. After all, GEOS is without a doubt the premier productivity package for the Commodore 64 and 128 computers. Whatever type of work you need to get done, there's probably a way to do it easier with GEOS. And work is serious stuff.

So in this column I'll be talking about things like better ways to geoPublish and the best add-on programs for geoWrite. I'll try to give you a first glimpse of all the most powerful and efficient new GEOS products that come along (of which there are a lot more than you might think). In other words, I'll make sure things stay solid and no-nonsense. This is GEOS, not *The Muppet Print Kit*, for Pete's sake.

To get things off to a rousing start, I've been poking around in my drawer full of disks which hold all the hundreds of GEOS programs I've accumulated from *Q-Link* and *GEnie* over the years. I know there are a lot of great shareware and public domain programs in there that make working in the GEOS environment extremely efficient and productive. I checked some disks I haven't looked at for quite a while, and I was gratified to see plenty of interesting applications, desk accessories, and so on to choose from. I also found, tucked away on a back page, something called Yahtzee.

Of course I recognized that name; I love Yahtzee (the kind with real dice). I honestly couldn't remember if I'd ever played this GEOS version, so I figured it wouldn't hurt to give it a try. After all, I had plenty of time to get down to business and start working on this column. As it turned out, this version of Yahtzee is really quite good. I

played it a few times (and since it's a two player game only, each game was really sort of like two games, so it took a while) and then decided to copy it to my RAMLink so I could play it some more later. I also uploaded a copy of the file to GEnie, just in case anyone else likes Yahtzee too. It's file number is 14783.

On the same disk where I found Yahtzee, I found a little game called geoNim. I do remember playing that game before and seem to remember not liking it particularly well. I couldn't remember why, so I played it again a few times. I was right, I don't like it very much; it didn't seem to be much of a challenge, although it was designed well enough. But the game seems kind of pointless and the computer a pretty dumb opponent (or maybe I'm just really, really clever, I guess).

There are lots of better games around. A good example is Blackjack. I'm talking, of course, about the Blackjack that comes on the *DESKPACK Plus* disk (available through most GEOS dealers). That version is especially nice because it's a desk accessory, which means I can play it whenever I feel like it, even when I should be writing this column, which is what I'm really supposed to be doing right now. But since I'm thinking of it, I just copied it over to my RAMLink so that I'll be able to play a few hands if I need a break. And I also tested it a few times, just to make sure it's as cool as I remembered. It is.

There is another desk accessory game that I like called Skeet, which was originally a type-in program in *Compute's Gazette* and which they released on their *GEOS Collection* disk. Skeet is a (surprise) skeet shooting simulation. I copied it over to my RAMLink too so that I'd have a few choices of desk accessory games. I had a feeling that Skeet wouldn't be very easy to play now that my mouse is defunct and I'm back to doing everything with a joystick; I was right. I only played that one a couple of times.

In that same pile, which is set aside for commercial disks (see how organized I am?) I found my copies of the *RUN GEOS Power Pack* disks and *GEOS Companion* (all available from CMD). I knew of several games on those disks, including Breakout, but decided I shouldn't let myself start playing those or I'd never get this column written. I settled for just a few practice rounds of my favorite GEOS game, geoTiles. This jewel of a game is found on *GEOS Power Pack 2*, and I think it's worth the price of the whole disk all by itself.

I had forgotten just how many GEOS games there actually are. I haven't even mentioned geoWar or Cluster Wars or any of the card games like Solo Poker, all of which I haven't played in ages! I guess the serious work can wait until my next column. Check back then and I'll talk about something no-nonsense and efficient. For now, I think I'll play geoTiles a few more times.

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COLOR 64 BBS

THE COLOR 64 BBS SYSTEM, one of the most sophisticated BBS systems for the Commodore 64 computer, has always been built to be functional when first installed yet completely modifyable by the SYSOP. Now we are proud to announce the release of version 8.0, the latest form of the BBS system that is popular with both beginner and advanced Sysops.

In its stock form Color 64 supports: 300 to 2400 BPS; up to 38,400 BPS with CMD's SwiftLink; Hayes compatible modems; Commodore or compatible disk drives; CMD HD Series, Lt. Kernal and ICT hard drives; IEEE drives; Commodore REU's up to 2 MB; CMD's RAMLink and MORE. A minimum of 1300 blocks of disk space is recommended as well as some form of disk drive speed enhancement such as CMD's JiffyDOS, Skyles Flash Interface or fastloader.

Color 64 also features: upload and download directories; Punter and Xmodem protocols; an advanced public message system; a full featured message editor; built-in MCI commands for message formatting; 40 and 80 column support; an automatic page pauser; Commodore graphics and color; ANSI graphics and color; Built-in terminal program with phone book; Built-in networking with networked mail, public messages, and file transfers.

More information about Color 64 BBS can be obtained by contacting the SYSOP of the Sonic Temple BBS at 410-285-0428. You can also send GEnie mail to F.OGLE, Inet/Usenet mail to F.OGLE@GENIE.GEIS.COM or U.S. Mail to Fred Ogle, P.O. Box 35427, Dundalk, MD 21222-7427. Send all orders via Mail.

Pricing for Color 64 Version 8.0, a four disk set with documentation: the cost is $65.00. Postage/handling charges: US Mail 3rd Class add $2.00 (Surface), US Mail 1st class(Air) add $3.00, Priority Mail (2nd Day) add $4.00, Express Mail (Next Day) add $15.00. U.S. funds only, checks or money orders accepted. Canadian orders add $5.00. Prices and features are as of 3/13/94 and are subject to change.

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geoProgrammist

By Maurice Randall

HOW TO WRITE YOUR FIRST GEOS PROGRAM

Before getting too deep into GEOS programming, I must emphasize the importance of obtaining one or both of the following publications: *The Official GEOS Programmer's Reference Manual*, and *The Hitchhiker's Guide To GEOS* (both of these are available from CMD). Each of these works contain information about the GEOS system that is invaluable to the programmer. On a small scale, you can get by with just one or the other; the serious programmer, however, should have both. The manual that came with your copy of GeoProgrammer is quite thick, and even though it contains a good deal of information, the bulk of it is devoted to the actual use of the applications, geoAssembler, geoLinker, and geoDebugger.

For the time being, open up your manual and study chapters 3 and 4. This will give you a basic understanding of how to assemble and link a GEOS program. Now, let's dig right in and work on a very simple application.

Begin by copying the two files, SamSeqHdr and SamSeq.lnk, from your geoProgrammer disk to a work disk or your RAM disk. You always need a *Hdr file and a *.lnk file. The header (*Hdr) file contains the information that, when assembled, will make up the 256 byte block that is considered the header block of a GEOS file. This is where the Desktop looks when you select 'info' from the file drop-down menu. The link (*.lnk) file is needed by geoLinker. It contains the info needed to properly link your assembled source code into a usable application. If you study the contents of these files, you will see parts that you may alter for your own purpose. In the *.lnk file, you would change the filenames to match the files that you are working on. For now, let's keep it simple and use these files just as they are.

What we must do now is create the source code for our 'program'. Instead of copying the SamSeq file, we will refer to it while we write our own version of it. So, on your work disk, use geoWrite to create a file called SamSeq. Get into the habit of making your source code organized and easy to read by setting up tabs to separate the elements that make up each line instead of using spaces. I've found that on an 80 column display, tabs at 1 inch, 2 inches, and 3.7 inches work pretty good. For a 40 column display, something like .5 inches, 1.5 inches, and 3 or 3.2 inches is better. You'll want to avoid having to scroll side to side if you can.

On the first page of this source code, type in the following:

```
.include  geosSym
          .psect
```

The geosSym file contains many symbols that refer to various parts of GEOS for use in your own programming. The symbol 'EnterDesktop' is defined in this file.

Press <RETURN> a couple of times and add a label to your program code, perhaps ProgStart, as it is in the actual SamSeq file. Even a small application needs to start out with a label—geoProgrammer doesn't seem to like it if you leave this out. The .psect tells geoProgrammer that the code following from this point is to be assembled to run beginning with the current value of the program counter. In other words, this is a 'program section' of code. We will get into this a little later.

At this point in the operation of your application, it will be in control of the machine. The ideal situation is for your application to just do what it needs to do and then put GEOS and the user back in control. If you have written programs for the native mode of your computer, you know what happens when your program ends with an 'rts'. Your program ends and control is returned to the user. This is not the case with GEOS. If you want your program to end, you need to jump to a routine called 'EnterDesktop'. Remember that we are working with a point and click environment. Built within the GEOS Kernal are many routines that have already been written for us. There is a great deal of programming already done that we can avoid including in our own programming.

If you think you are ending your application with an 'rts', you are returning control to the user and to GEOS, but your application is still in use. At this point, the GEOS Kernal is watching for some sort of user response, either from the keyboard or the mouse. If the user performs an

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"GEOS WATCHES FOR AN 'EVENT' TO HAPPEN, AND RESPONDS ACCORDINGLY. IT'S A NICE WAY TO DO THINGS."

action of some sort, GEOS will respond by reentering your application. This portion of GEOS that is running is called 'MainLoop'. Normally, outside of GEOS, you would have to have your own main loop and include the needed programming to catch the user's input. Instead, all that is needed here are lookup tables for MainLoop to look at when it gets a response from the user. If there are no lookup tables, then nothing happens, GEOS ignores the user's actions and the user gets the feeling that the computer has just locked up.

If your application simply performs a job and finishes, you can end it by jumping to EnterDesktop. But if you need some user input, such as clicking on icons or menus, you will need to tell GEOS where to find the appropriate lookup tables before you get to that first rts.

When your program gives control to MainLoop, the user might click the mouse. There is one thing you must keep in mind here. GEOS will look for an icon table. If it does not find one, there will be problems. It doesn't seem to mind if there is no table for menus, but you need to at least provide an icon table even if your application is not going to use icons. This only applies if you return to MainLoop with an rts. If you exit back to the Desktop instead of MainLoop, the user doesn't get control of the mouse anyway and likewise, MainLoop will never get control while your application is running. It all depends on what your application is going to accomplish. If you need user input, your icon table can define an icon that does not exist. This way GEOS won't have a problem. I'll show you how to do that at a later date.

In the SamSeq file supplied with geoProgrammer, you will find an icon table. It will begin with a label called 'IconTable'. This particular table consists of 9 lines. Copy this into the sample file that we are building here. You might want to put it on page 2 to keep it out of the way. Create another label after this table called 'Icon1Picture' just like in the SamSeq file. Following this will go a photo scrap of whatever icon you wish to use. So, load up geoPaint and create a graphic of some sort. Copy it into a photo scrap and then paste that scrap into your source code after the label 'Icon1Picture'. One thing you must remember here is to always put a blank line above and below any photo scrap you put in your source code, so do that now. This insures that geoAssembler knows the exact start and end of the graphic. Can you imagine having to code this graphic into your source code manually? This is pretty handy isn't it?

Within the icon table, we need to tell GEOS how wide and how tall the icon is. Here again, geoAssembler will figure this out for us. As soon as it processes the photo scrap it will place these values into two of it's own internal variables, which are called picW and picH. From within your source code, you have access to these variables and can copy these values into your own symbols. This is normally done in your source code immediately following the photo scrap. So, type in the same thing as in the SamSeq file, or cut it to a text scrap and then paste it in your own file. Since you are including ICON1WIDTH =picW and ICON1HEIGHT =picH, whatever values are contained in picW and picH will be in your symbols. You will find a reference to these symbols in the icon table. This is how you get these values to show up in your icon table.

In this icon table, find the reference to DoIcon1. This is the name of the routine that GEOS will jsr to when the user clicks on your icon. For our purpose, let's change this to EnterDesktop. This way, when the user clicks on your icon, your application will simply end.

Let's go back to page 1 and build a little bit of code at the start of our application now. Later on, I will get into the use of macros with geoProgrammer. And you will find that you really can't live without them. It makes your coding so much easier. For right now, we will do without them for demonstration purposes. Anyway, use your tabs and type in the following code:

```
ProgStart:
        lda   #[IconTable
        sta   $02
        lda   #]IconTable
        sta   $02+1
        jsr   DoIcons
        rts
```

That is the extent of our little application here. This along with the icon table, the icon picture, and the header block, is all of the code that will be assembled and linked. Load up geoAssembler and assemble SamSeqHdr and your new SamSeq file. Then load geoLinker and link the resulting .rel files together by selecting the file called SamSeq.lnk. If everything goes good, you will have a finished application that you can load and run from the deskTop.

What our code does here is to point the required zero page register to our icon table and call a GEOS Kernal routine known as DoIcons. This register is usually referred to as rØ, and after this we will always call it rØ. I will get into this at a later date also. DoIcons will do a couple of things for us. It will first set up a pointer within the GEOS Kernal so that MainLoop knows where to find our icon table. Then it will perform the job of drawing our icon on the screen. Following this it returns to our application. In our case, we just do an rts now and let MainLoop take over and give control to the user.

The user now has full control of the mouse and the keyboard. There is really only one thing that GEOS will let the user do at this point. We did not tell GEOS that we are looking for keyboard input and we did not inform it of any menus either. But we did define one icon. As soon as the user clicks on this icon, GEOS will close out our application and reload the deskTop.

Our icon could have just as easily told GEOS to access another routine within our application. This is how GEOS works, and is called 'event programming'. GEOS watches for an 'event' to happen, and responds accordingly. It's a nice way to do things.

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BASIC INSTINCTS

by Gene Barker

When Doug Cotton asked me to expand Big Guns into a large game that would span across the remaining five issues for this year, I was a little skeptical. After all, Big Guns was a fictional game we put together to illustrate sound programming practices. In fact Doug had to use some of that Editor-Columnist arm twisting in order to convince me to create the new game. After working on this for some time, I finally recognized the value of creating such a column. I must admit, our editor here at Commodore World had a great idea and I believe that through these columns we are going to learn a great deal about programming. Even better, we're going to have fun doing it! Below you will find the results of our efforts.

This is the first of five installments of the new game Starship Combat. Starship Combat is written entirely in Commodore BASIC v2. We will focus heavily on structured program development so that we can become better programmers. Although this column is designed for beginning BASIC programmers, even those of you who are experienced may want to review some of the advanced techniques utilized by Starship Combat's subroutines.

The Game

Starship Combat has the ability for two sets of forces (the Union and the Alliance) to duke it out in space using a variety of ships, weapons, and special items. The computer controls the Alliance forces and the player controls the Union forces. The battlefield is a (10) by (10) grid of sectors for a total of (100) sectors. Only one sector is displayed on the screen at any one time. Each sector is a (10) by (10) grid of characters. Each ship has its own letter (A-Z) to represent it in a sector; so we may have up to (26) ships in the game at any one time. Combat will be limited to the current sector for each ship; a ship may only attack other ships that are in the same sector. A ship can be destroyed in two ways: when its superstructure fails or when the ship runs out of power. The game is over when an entire side has been destroyed. In this installment of Starship Combat we will concentrate on the following:

- Setup the game screen
- Design our text system (where and how we will output game text)
- Setup the game's main loop
- Create the movement system for the ships
- Design a simple routine to guide the computer's ships

Before we begin to type madly at the keyboard, we must design Starship Combat on paper. In the long run this method will save us a great deal of time. We will create the program Starship Combat in three steps:

(1) Outline main logic
(2) Design data structures (our variable types)
(3) Write the program

Outline Main Logic

Let's write out how Starship Combat will work in a simple format so that we will have some idea of how to approach this project in BASIC.

```
Initialize all Union and Alliance ships
While the Union ships are alive;
   Initialize the movement points for all the ships
   While ships still have movement points;
      process ship with most movement points
   End_While
End_While
```

The outline above will help us keep focused as we develop Starship Combat's code.

Design Data Structures

First and foremost, we need a way to represent all the ships in the game. The most convenient way to do this in Commodore BASIC is to use a two-dimensional array. We will call this array SL% for Ship List. The array will contain a record for each ship. Each ship has a number SH for SHip which will tell us where it is located in the array. A ship record will contain the following information:

SL%(SH,0)	Ship type: [0] - Union Scout [1] - Union Light Destroyer [2] - Alliance Hunter [3] - Alliance Light Destroyer
SL%(SH,1)	Sector number where ship is located [0-99]
SL%(SH,2)	X Coordinate of ship's location in the current sector [0-9]
SL%(SH,3)	Y Coordinate of ship's location in the current sector [0-9]
SL%(SH,4)	Current number of movement points available [n]
SL%(SH,5)	Amount of power remaining in the ship's reserves [n]

The "%" following the array name tells BASIC that all the values contained in the array are integers. We'll use an integer array since integers use less than half the memory of real numbers (integers require two bytes per number and reals require five).

In the outline we created above, we wrote that we must initialize all the ships before the start of the game and we must initialize all the ships movement points at the beginning of each round. In this installment of Starship Combat we have four ship types (0-3). Each ship type is defined by its name, available movement points per round, and its default power supply. Since the name is a character string AND the movement points and the power supply are integers, we must use two separate arrays to represent them. We will name the arrays TY$ and TY% for ship TYpes. The first array will be just a list of the ship names; so it will only require one dimension.

TY$(0)	UN Scout
TY$(1)	UN L-Dest
TY$(2)	AL Hunter
TY$(3)	AL L-Dest

The "$" following the array name tells BASIC that all the values contained in the array are strings. Our second array will require more than one number for each ship; so it will require two dimensions where:

TY%(X,0)	Available movement points per round
TY%(X,1)	Default power supply level

"X" is the ship type (0-3). In the program listing you will find that we reference this array using the ship type entry in the SL% array. For example,

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TY%(SL%(SH,4),0) tells us the number of movement points that the ship SH in the game has per round.

Our last data structure will address our need to accept several different keyboard commands for the players options in the main menu. We will create another one-dimensional array named OP$ for OPtions which will contain each of the command characters.

OP$(0)	@	Move ship up
OP$(1)	:	Move ship left
OP$(2)	;	Move ship right
OP$(3)	/	Move ship down
OP$(4)	u	Use an item
OP$(5)	r	Effect repairs on ship
OP$(6)	w	Wait one turn
OP$(7)	q	Quit the game
OP$(8)	[F1]	Fire ship's phasers
OP$(9)	[F3]	Fire ship's torpedoes

Write The Program

Now that we have our outline and data structures designed let's hit the keyboard!

As you type in the program make sure you review each section's comments below. This will help you understand the flow of the program. You will also find a couple of helpful notes and insights which you might find useful in the future.

IMPORTANT VARIABLES

NT	Number of ship types available
UT	Number of union ship types available (union ship types must be first in the TY arrays) Used to detect whether a ship is from the Union or Alliance
TY$	Ship type name array
TY%	Ship type statistics array (movement points and power supply)
NS	Number of ships that are alive
SL%	The ship list array containing the current status of each ship
OP	Number of options available in main menu
OP$	Array of possible command characters
SA$	Initialization string for status area
OA$	Initialization string for options area
NA$	Initialization string for notes area
SH	Current ship
MP	Movement points available for the current ship
PW	Power supply for the current ship
XX	X coordinate for current ship
XY	Y coordinate for current ship
XZ	Sector number for the current ship

MAIN PROGRAM DESCRIPTION

Lines 100-199 (setup main game loop)
- Call the setup screen routine
- Call the initialize game variables routine

Lines 200-299 (main loop for the game)
- Follow structure of our outline using calls to subroutines
- Lines 215 and 220 perform our first While by cycling through all ships in the ship list SL% until it finds a Union ship type
- Line 225 calls the initialize all ships for next round routine and frees up any unused strings using the FRE function (this will help us avoid a lengthy garbage collection delay caused by our use of strings)
- Lines 230-250 finds the ship with the most movement points available
- Lines 255-260 calls either the process Union ship or process Alliance ship routine

Lines 400-460 (all union ships are destroyed)
- Tell player all Union ships have been destroyed
- Ask player if he/she wishes to play again

SUBROUTINE DESCRIPTIONS

Lines 10000-10199 (setup screen)
- Set screen colors and select the lowercase character set
- Print the main game screen

Lines 10200-10299 (print repeated ch string)
Given: XS$ - the string; XS - the number of repetitions
- This routine prints the string XS$, XS times

Lines 10400-10699 (initialize game variables)
- Lines 400-499 sets up the ship type arrays TY$ and TY%
- Lines 500-570 sets up the main ship list array SL% placing three Union ships in sector (22) and four Alliance ships in sector (33)
- Lines 575-600 creates the strings SA$, OA$, and NA$ which point to top left hand corner of the Status, Options, and Notes text area on the game screen
- Lines 605-630 sets up the command character array OP$ for the main options menu

Lines 11000-11199 (initialize all ships for next round)
- Cycles through all the ships in the ship list and resets their movement points

Lines 11200-11299 (clear notes area and set the cursor)
- Fills the notes area with spaces
- Sets cursor color and position for the notes area

Lines 11300-11399 (clear options area and set the cursor)
- Fills the options area with spaces
- Sets cursor color and position for the options area

Lines 11400-11699 (update status and map area for current ship)
Given: SH - the ship number; MP - ship's current number of movement points
- Lines 400-499 prints the ship's stats in the status area
- Lines 500-599 updates the sector in the map area for the current ship
- Using screen memory which starts at 1024, the formulas place the ships at their proper location in the map area (through the use of the POKE command)

Lines 11700-11799 (print integer)
Given: XN - the integer; XL - the maximum length of the integer in characters
- This routine converts the integer to a string, removes the leading space from that string, pads the remaining string with spaces, then prints the string (using the MID$ function)

Lines 11800-11999 (kill ship)
Given: XK - the ship number to kill
- Informs player of ship's destruction
- Removes ship from ship list SL% and moves all ships with higher numbers than XK down one position in the ship list

Lines 20000-24999 (process union ship turn)
Given: SH - Union ship number; MP - ship's movement points
- Lines 000-030 Updates status and map areas for the ship
- Lines 035-070 Prints the main menu in the options area
- Lines 075-199 Gets the command character from the keyboard and goes to its respective routine
- Lines 200-999 Execute the respective commands

Lines 25000-29999 (process alliance ship turn)
Given: SH - Alliance ship number; MP - ship's movement points
- Lines 000-030 Updates status and map areas for the ship
- Lines 035-999 Close in on the closest Union ship

(*See the program listing on the following pages*)

A Note Concerning Program Entry

Large program listings appearing in Commodore World magazine are accompanied by a list of checksum values to the left of each line. Do not enter these values as part of the program. The values can be verified using the Commodore World `CHK-LIST` utility, located elsewhere in this issue.

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STARSHIP COMBAT

```
5000 100 rem--------------------------------
6DC2 105 rem commodore world magazine
C67C 110 rem basic instincts w/gene barker
8589 115 rem starship combat part i
0E6B 120 rem
1A27 125 rem (c)1994 creative micro designs
92AD 130 rem--------------------------------
1315 135 rem-
5639 140 rem setup main game loop
C243 145 rem-
E9DB 150 gosub10000:clr
022B 155 gosub10400
C1CC 200 rem-
F9C6 205 rem main loop
DA6B 210 rem-
28AF 215 fori=0tons-1:ifsl%(i,0)<utthen225
3806 220 next:goto400
314B 225 : gosub11000:i=fre(0)
7C1C 230 : sh=999:mp=0
48E5 235 : fori=0tons-1
2419 240 :   ifsl%(i,4)>mpthensh=i:mp=sl%(i,4
     )
7506 245 : next
D18B 250 : ifsh=999then200
3D73 255 : ifsl%(sh,0)<utthengosub20000:goto2
     30
CC78 260 : gosub25000:goto230
83C7 400 rem-
9C62 405 rem all union ships are destroyed
83C7 410 rem-
1F53 415 gosub11200
EF56 420 print"All Union ships have been dest
     royed."
1ABA 425 gosub11300
000D 430 print"Game over."
E252 435 printoa$"{2 CRSR DN}Try again?"
C023 440 printoa$"{4 CRSR DN}(y)yes"
C518 445 printoa$"{5 CRSR DN}(n)no"
9B57 450 getx$:ifx$="n"thenend
6D6F 455 ifx$<>"y"then450
F25C 460 run
548B 10000 rem------------------------------
90EC 10005 rem setup screen
EC33 10010 rem
E4D6 10015 rem sets up screen for the game
1F71 10020 rem------------------------------
3214 10025 rem-
710B 10030 rem set screen colors & ch set
29B3 10035 rem-
A0BF 10045 poke53280,0:poke53281,0
49A9 10050 printchr$(14)
9679 10055 rem-
83ED 10060 rem print the screen
472F 10065 rem-
346E 10070 print"{CLR/HOME}{DGRY}";:xs=39:xs$
     ="{CMDR @}":gosub10200:print
4745 10075 print"{RVS ON}{SPACE}{WHT}Commodor
     e World's Starship Combat{4 SPACES}{DGRY
     }{SPACE}"
2DD3 10080 xs$="{CMDR t}":gosub10200:print
CD96 10085 print"{CRSR RT}{YEL}{RVS ON}Status
     "spc(5)"Map"spc(8)"Options{DGRY}"
A4DD 10090 xs$="{CMDR @}":gosub10200:print
5E73 10095 xs=10:xs$="{RVS ON}{SPACE}{LGRY}{1
     0 SPACES}{DGRY}{SPACE}{WHT}----------{DG
     RY}{SPACE}{LGRY}{15 SPACES}{DGRY}{SPACE}
     "+chr$(13)
1922 10100 gosub10200
B392 10105 xs=39:xs$="{CMDR t}":gosub10200:pr
     int
```

STARSHIP COMBAT *(cont.)*

```
BD69 10110 print"{CRSR RT}{RVS ON}{YEL}Notes{
     DGRY}"
AF73 10115 xs$="{CMDR @}":gosub10200:print
8E74 10120 print"{RVS ON}";:xs=6:xs$="{SPACE}
     {CRSR DN}{CRSR L}":gosub10200
27C3 10125 print"{RVS OFF}";:xs=39:xs$="{CMDR
      t}":gosub10200
7588 10130 print"{RVS ON}";:xs=6:xs$="{CRSR U
     P}{CRSR L}{SPACE}":gosub10200
0031 10135 print"{HOME}{6 CRSR DN}{CRSR RT}{L
     GRY}";:xs=10:xs$="{SHFT *}":gosub10200:p
     rint
A745 10140 print"{2 CRSR RT}{RVS ON}Move:"
A5B7 10145 print"{CRSR RT}{RVS ON}Power:"
A214 10150 print"{2 CRSR RT}{RVS ON}Shld:"
2405 10155 print"{CRSR RT}{RVS ON}Super:"
9FAE 10160 print"{2 CRSR RT}{RVS ON}Torp:"
CC31 10165 print"{CRSR RT}{RVS ON}";:gosub102
     00:print
6D7C 10170 print"{2 CRSR RT}{RVS ON}Sect:"
9602 10175 print"{3 CRSR RT}{RVS ON}Pos:{SPAC
     E},"
7E1C 10180 return
378A 10200 rem------------------------------
CE67 10205 rem print repeat ch string
B2FD 10210 rem
1764 10215 rem xs$ - ch string
0C1C 10220 rem xs  - # of repeats
BA56 10225 rem------------------------------
B4E9 10230 forxi=1toxs:printxs$;:next:return
243C 10400 rem------------------------------
2DD3 10405 rem initialize game variables
243C 10410 rem------------------------------
1315 10415 rem-
F3A8 10420 rem setup ship definitions
C243 10425 rem-
7673 10430 nt=4:ut=2
4B79 10435 dimty$(nt-1),ty%(nt-1,2)
2817 10440 forxi=0tont-1:readty$(xi):forj=0to
     1:readty%(xi,j):next:next
880F 10445 data "UN Scout",3,500
ADCA 10450 data "UN L-Dest",4,750
83DF 10455 data "AL Hunter",3,480
C6F9 10460 data "AL L-Dest",4,725
5291 10500 rem-
0B12 10505 rem setup ship list
5291 10510 rem-
8859 10515 ns=7:dimsl%(ns-1,5)
6533 10520 forxi=0tons-1
4E09 10525 : forxj=0to3:readsl%(xi,xj):next
1E8C 10530 : sl%(xi,5)=ty%(sl%(xi,0),1)
D8C1 10535 next
C4A5 10540 data 1,22,4,5
6647 10545 data 0,22,2,7
B426 10550 data 0,22,6,7
FE02 10555 data 2,33,3,3
1767 10560 data 2,33,3,9
C251 10565 data 3,33,5,5
CCF0 10570 data 3,33,5,7
4AB9 10575 rem-
4860 10580 rem setup string variables
9BEF 10585 rem-
B66A 10590 sa$="{HOME}{5 CRSR DN}{CRSR RT}{RV
     S ON}{LGRY}"
25E6 10595 oa$="{HOME}{5 CRSR DN}{23 CRSR RT}
     {RVS ON}{LGRY}"
256B 10600 na$="{HOME}{18 CRSR DN}{CRSR RT}{R
     VS OFF}{WHT}"
4AB9 10605 rem-
4E2A 10610 rem setup option ch's
```


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STARSHIP COMBAT *(cont.)*

```
511E 10615 rem-
8FDA 10620 op=10:dimop$(op-1):forxi=0toop-1:r
     eadop$(xi):next
A560 10625 data "@",":",";","/","u","r","w","
     q","{F1}","{F3}"
AF75 10630 return
1BF5 11000 rem------------------------------
33C5 11005 rem initialize all ships for
E750 11010 rem next round
E794 11015 rem------------------------------
5FB7 11020 forxi=0tons-1
6B4D 11025 : sl%(xi,4)=ty%(sl%(xi,0),0)
AC92 11030 next
07E6 11035 return
1E7B 11200 rem------------------------------
138B 11205 rem clear notes area and set
67AF 11210 rem the cursor
8495 11215 rem------------------------------
F339 11220 print"{HOME}{17 CRSR DN}"
B7D1 11225 xs=6:xs$="{CRSR RT}{37 SPACES}"+ch
     r$(13):gosub10200
72DC 11230 printna$;:return
4637 11300 rem------------------------------
54BB 11305 rem clear options area and set
F17B 11310 rem the cursor
8011 11315 rem------------------------------
DDC7 11320 print"{HOME}{5 CRSR DN}{RVS ON}{LG
     RY}";
0B97 11325 xs=10:xs$="{23 CRSR RT}{RVS ON}{15
      SPACES}"+chr$(13):gosub10200
B0D3 11330 printoa$;:return
5105 11400 rem------------------------------
C12E 11405 rem update status and map area
DF0C 11410 rem for current ship
34F2 11415 rem
E9CD 11420 rem sh - ship #
C41D 11425 rem mp - movement points
4637 11430 rem------------------------------
0524 11435 rem-
4452 11440 rem update ship's status
D472 11445 rem-
1A34 11450 printsa$;left$(ty$(sl%(sh,0))+"{8
     SPACES}",10)
2660 11455 print"{RVS ON}{CRSR DN}"spc(7);:xn
     =sl%(sh,4):xl=4:gosub11700
EA76 11460 print:print"{RVS ON}"spc(7);:xn=sl
     %(sh,5):gosub11700
09C8 11465 print:print"{RVS ON}{4 CRSR DN}"sp
     c(7);:xn=sl%(sh,1):gosub11700:xz=xn
9521 11470 print:print"{RVS ON}"spc(7);:xn=sl
     %(sh,2):xl=1:gosub11700:xx=xn
62BD 11475 print"{CRSR RT}";:xn=sl%(sh,3):gos
     ub11700:xy=xn
D7FD 11500 rem-
06BE 11505 rem update map area
CC5A 11510 rem-
6AE1 11515 print"{HOME}{5 CRSR DN}{WHT}";:xs=
     10:xs$="{12 CRSR RT}{RVS ON}----------"+
     chr$(13):gosub10200
A4F0 11520 forxi=0tons-1:ifsl%(xi,1)<>xzthenn
     ext:goto11530
C536 11525 poke1024+5*40+12+sl%(xi,3)*40+sl%(
     xi,2),xi+193:next
CC57 11530 xt=1024+5*40+12+xy*40+xx:pokext,pe
     ek(xt)-128:return
43B9 11700 rem------------------------------
7F14 11705 rem print integer
30F3 11710 rem
43FF 11715 rem xn - the integer
1D64 11720 rem xl - max length of integer
```

STARSHIP COMBAT *(cont.)*

```
F1AC 11725 rem------------------------------
39A6 11730 printmid$(str$(xn)+"{5 SPACES}",2,
     xl);
0A4F 11735 return
0DCD 11800 rem------------------------------
DDE8 11805 rem kill ship
9C61 11810 rem
37C1 11815 rem xk - ship # to kill
4637 11820 rem------------------------------
AE80 11825 xx=sl%(xk,2):xy=sl%(xk,3)
0CBE 11830 xt=12+5*40+xx+xy*40:poke55296+xt,2
     :poke1024+xt,170
6999 11835 gosub11200
AD83 11840 print"Ship is destroyed!"
A149 11845 rem-
58C7 11850 rem update ship list
A149 11855 rem-
2BD9 11860 ifns=1then400
889B 11865 ns=ns-1:ifxk=nsthenreturn
0CBE 11870 forxi=xk+1tons
70E5 11875 : forxj=0to5:sl%(xi-1,xj)=sl%(xi,x
     j):next
D169 11880 next
7A1D 11885 return
7272 20000 rem------------------------------
2970 20005 rem process union ship turn
7272 20010 rem------------------------------
D278 20015 rem-
8F8D 20020 rem update status/map/options
032E 20025 rem-
200B 20030 gosub11400
4821 20035 gosub11300
FF57 20040 print"(@,:,;,/)move"
7587 20045 printoa$"{2 CRSR DN}(u)use item"
0B44 20050 printoa$"{3 CRSR DN}(r)repairs"
5518 20055 printoa$"{4 CRSR DN}(w)wait"
033F 20057 printoa$"{5 CRSR DN}(q)quit game"
83DA 20060 printoa$"{6 CRSR DN}[F1]fire phase
     r"
7A10 20065 printoa$"{7 CRSR DN}[F3]fire torp"
DEF8 20070 printoa$"{9 CRSR DN}(A-Z)view ship
     "
7615 20075 rem-
B3EF 20080 rem get option
A743 20085 rem-
46BA 20090 getxx$:ifxx$=""then20090
DF19 20095 ifxx$>="A"andxx$<="Z"then20700
C23E 20100 pw=sl%(sh,5)
A8D6 20105 forxi=1toop:ifxx$<>op$(xi-1)thenne
     xt:goto20090
165B 20110 onxigoto20200,20300,20400,20500,20
     090,20090,20800,20600,20090,20090
00A1 20200 rem-
B36C 20205 rem move ship up
1B06 20210 rem-
8268 20215 ifxy<>0thenxy=xy-1:goto20230
4A07 20220 if(xz-10)<0then20230
D1D4 20225 xz=xz-10:xy=9
93FC 20230 rem-
28DB 20235 rem do the move
42AA 20240 rem-
9716 20245 sl%(sh,1)=xz:sl%(sh,2)=xx:sl%(sh,3
     )=xy
5A3D 20250 mp=mp-1:pw=pw-1
FEEF 20255 rem-
4504 20260 rem update stats
2FB9 20265 rem-
E70D 20270 sl%(sh,4)=mp:sl%(sh,5)=pw
82BB 20275 gosub11400:ifpw=0thenxk=sh:gosub11
     800
3B6A 20280 gosub11200:return
```


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STARSHIP COMBAT *(cont.)*

```
FD6Ø 2Ø3ØØ rem-
EA37 2Ø3Ø5 rem move ship left
E6C7 2Ø31Ø rem-
9F84 2Ø315 ifxx<>Øthenxx=xx-1:goto2Ø23Ø
45C4 2Ø32Ø ifright$(str$(xz),1)="Ø"then2Ø23Ø
17ED 2Ø325 xz=xz-1:xx=9:goto2Ø23Ø
42AA 2Ø4ØØ rem-
4754 2Ø4Ø5 rem move ship right
42AA 2Ø41Ø rem-
9956 2Ø415 ifxx<>9thenxx=xx+1:goto2Ø23Ø
861A 2Ø42Ø ifright$(str$(xz),1)="9"then2Ø23Ø
4CE4 2Ø425 xz=xz+1:xx=Ø:goto2Ø23Ø
2ØC8 2Ø5ØØ rem-
7EBØ 2Ø5Ø5 rem move ship down
2ØC8 2Ø51Ø rem-
AECB 2Ø515 ifxy<>9thenxy=xy+1:goto2Ø23Ø
EE58 2Ø52Ø if(xz+1Ø)>99then2Ø23Ø
25C2 2Ø525 xz=xz+1Ø:xy=Ø:goto2Ø23Ø
84A5 2Ø6ØØ rem-
ØACE 2Ø6Ø5 rem quit game
F19E 2Ø61Ø rem-
4721 2Ø615 gosub113ØØ
ØD5C 2Ø62Ø print"Quit game:"
2D3Ø 2Ø625 printoa$"{2 CRSR DN}Are you sure?"
4663 2Ø63Ø printoa$"{4 CRSR DN}(y)yes"
4358 2Ø635 printoa$"{5 CRSR DN}(n)no"
46B8 2Ø64Ø getxx$:ifxx$="n"then2ØØØ
1A85 2Ø645 ifxx$<>"y"then2Ø64Ø
ØEBF 2Ø65Ø end
4E54 2Ø7ØØ rem-
BØ92 2Ø7Ø5 rem view ship
55F3 2Ø71Ø rem-
1B1A 2Ø715 sh=asc(xx$)-asc("A")
648Ø 2Ø72Ø ifsh>=nsthenreturn
C4CØ 2Ø725 mp=sl%(sh,4)
2FØB 2Ø73Ø gosub114ØØ
8C45 2Ø735 gosub113ØØ
C9BA 2Ø74Ø print"View ship:"
B2B2 2Ø745 printoa$"{2 CRSR DN}(press a key)"
C721 2Ø75Ø getxx$:ifxx$=""then2Ø75Ø
Ø959 2Ø755 return
A832 2Ø8ØØ rem-
9BC2 2Ø8Ø5 rem wait one turn
A832 2Ø81Ø rem-
E6ØB 2Ø815 mp=mp-1:pw=pw-1:goto2Ø255
5EØD 25ØØØ rem-----------------------------
75CD 25Ø05 rem process alliance ship turn
Ø2C5 25Ø1Ø rem-----------------------------
222F 25Ø15 rem-
3949 25Ø2Ø rem update status/map/options
9DE5 25Ø25 rem-
92C8 25Ø3Ø gosub114ØØ
3186 25Ø35 gosub113ØØ
97FF 25Ø4Ø print"Alliance ship"
2Ø4B 25Ø45 printoa$"{CRSR DN}closes!"
921D 25Ø5Ø pw=sl%(sh,5)
4CB3 25Ø55 rem-
D5BA 25Ø6Ø rem move towards a union ship
9DE5 25Ø65 rem-
A11A 25Ø7Ø forxi=Øtons-1:ifxi=shthen25Ø8Ø
A7D3 25Ø75 : if(sl%(xi,Ø)<ut)and(sl%(xi,1)=xz
     )then253ØØ
6Ø33 25Ø8Ø next
78ØC 251ØØ rem-
79DD 251Ø5 rem find closest union sector
63AB 2511Ø rem-
83CE 25115 xp=999:xd=999
CEFF 2512Ø forxi=Øtons-1
12CØ 25125 : ifsl%(xi,Ø)>=utthen25165
F6A2 2513Ø : x1=xz:y1=Ø
```

STARSHIP COMBAT *(cont.)*

```
B321 25135 : ifx1>9thenx1=x1-1Ø:y1=y1+1:goto2
     5135
6A63 2514Ø : x2=sl%(xi,1):y2=Ø
8BA9 25145 : ifx2>9thenx2=x2-1Ø:y2=y2+1:goto2
     5145
DE47 2515Ø : x1=abs(x2-x1):y1=abs(y2-y1)
B378 25155 : xt=x1+y1
4B6F 2516Ø : ifxt<xdthenxp=xi:xd=xt:x3=x1:y3=
     y1:xn=sl%(xi,1)
FB91 25165 next
D2E3 2517Ø ifxp=999then4ØØ
D5FB 25175 ifx3>y3then2519Ø
B4D1 2518Ø : if(xz-xn)<Øthen2Ø5ØØ
774E 25185 : goto2Ø2ØØ
4B86 2519Ø x1=xz:x2=xn
2DD7 25195 ifx1>9thenx1=x1-1Ø:goto25195
5139 252ØØ ifx2>9thenx2=x2-1Ø:goto252ØØ
956Ø 252Ø5 if(x1-x2)<Øthen2Ø4ØØ
29C4 2521Ø goto2Ø3ØØ
ØD37 253ØØ rem-
46AD 253Ø5 rem close on closest union ship
ØD37 2531Ø rem-
E74D 25315 xp=999:xd=999
13BF 2532Ø forxi=Øtons-1
AD72 25325 : if(sl%(xi,Ø)>=ut)or(sl%(xi,1)<>x
     z)then25345
Ø13B 2533Ø : yx=xx-sl%(xi,2):yy=xy-sl%(xi,3)
D68F 25335 : xt=abs(yy):ifabs(yx)<xtthenxt=ab
     s(yx)
D4ØB 2534Ø : ifxt<xdthenxp=xi:xd=xt:zx=yx:zy=
     yy
Ø9CD 25345 next
B9DØ 2535Ø ifabs(zx)>abs(zy)then25365
9966 25355 : ifzy<Øthen2Ø5ØØ
15A4 2536Ø : goto2Ø2ØØ
25AC 25365 ifzx<Øthen2Ø4ØØ
6775 2537Ø goto2Ø3ØØ
```


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ADVANCED TECHNIQUES

by Doug Cotton

Last issue we began looking at methods of making 'common code' programs that operate on both the C-64 and C-128. We generated a single line BASIC program to 'snoop around' and discover our configuration. I also presented a brief list of things to consider when writing code of this type. In this installment, we'll take a look at some specific ways to create these 'common code' programs utilizing some of those considerations.

It bears repeating that this kind of programming will require input to be performed on a 128—a C-64 simply doesn't have the ability to recognize BASIC 7.0 commands which will be used from time to time.

In looking over our 'snooper' line from last issue, I did notice an error that crept in when the program was converted to text; the CHR$(127) at the beginning of that program line should have been a CHR$(147). To make sure these errors don't happen in the future, I'm writing a program that will handle the conversions without human intervention.

Here then is the corrected program line:

```
10 PRINTCHR$(147);:F=ABS(PEEK(65533)=255):M=0:IF
FTHENM=ABS(PEEK(215)>127):IFMTHENFAST:WINDOW20,0
,59,24
```

One of the main points I want to cover in this issue is dealing with a large machine language written to run on both the C-64 and C-128. Normally, when a machine language program is written specifically for the C-64 or C-128, it is written to reside in a known location. Programmers often use a separate loader program that loads the machine language into that fixed location, or end up writing custom front-ends for programs each time they make a new program. Having to keep separate files together in order to get a program to work is not only annoying to a user, but it also brings other problems into play—like how to handle device numbers, subdirectory paths, etc. Granted, we all managed to live with old programs that had device 8 hard-coded in, and had lots of little modules for sprites, screen, and portions of the code itself. But I'd certainly like to see programmers today step up and start making things easier to deal with for the end user.

I can't count how many times in the past I've been close to completing a program, only to realize that I still had the task of writing a custom relocator or front-end module ahead of me. It was out of a desire to do away with 'the job after the job' that I began to experiment with creating a 'one for all' approach to this problem. The solution which I have been refining over time involves sandwiching a relocatable machine language 'mover' routine between a BASIC front end and the actual machine language program itself. Because it is written in relocatable code, it doesn't matter where in memory it is located.

The purpose of this routine is to move the machine language program up in memory if the computer it is being used on is a C-64. By moving it to where it would normally be located on a C-128, we can keep from having to write the entire machine language portion of the program in relocatable code. We can also keep our SYS command locations common for both types of computers when writing the BASIC portion of our program.

There's one more part of this puzzle to solve, however. How do we know where our relocating routine is? This, too, is fairly easy to overcome. Both the 64 and 128 have pointers in zero page memory to tell us where BASIC programs begin in memory. By using a BASIC routine to follow the line links, we can quickly find the end of the current BASIC program. And, with careful placement of our relocating routine, we'll know exactly where to SYS to.

I might mention some other possible ways to utilize these methods. While I intentionally designed this scheme as a way to start big machine language programs, I found it could also be applied to smartly written mixed BASIC and machine language programs. Using a number of small machine language subroutines for speeding up certain aspects of a BASIC program is something many of us as programmers have often done, or wish to do more of. Writing your machine language subroutines in relocatable code, and using the routines I'll be providing here, gives you the ability to edit your BASIC code without having to re-link the machine language routines. Your program can be loaded as a single entity, edited, and saved again—completely intact.

But enough about why I find this approach appealing; let's get into the code itself. Before we jump into the machine code portion, let's get the BASIC part set to do what it needs to. Here's our 'snooper' program line with the additional code we need:

```
686B  10 PRINTCHR$(147);:F=ABS(PEEK(65533)=255
      ):M=0:IFFTHENM=ABS(PEEK(215)>127):IFMTHE
      N=%:=20,0,59,24
5E39  20 X=PEEK(43)+PEEK(44)*256:IFFTHENX=PEEK
      (45)+PEEK(46)*256
EF66  30 NL=PEEK(X)+PEEK(X+1)*256:IFNL<>0THENX
      =NL:GOTO30
0B7B  40 IFFTHEN50
FA4D  41 POKE175,INT((X+62)/256):POKE174,(X+62
      )-(PEEK(175)*256):POKE251,PEEK(45)
155F  42 POKE252,PEEK(46):POKE253,PEEK(45):POK
      E254,PEEK(46)+20:SYS(X+2)
C4B3  50 SYS(X+62+((1+-F)*5120))
```

Here's a quick breakdown of what the BASIC portion does:

Line 10 - As we discussed last issue. Clears the screen; sets up variable F to indicate a 1 for 128 mode, or a zero for 64 mode; initializes variable M to zero; checks to see if we're in 128 mode, and drops out to line 20 if we aren't; sets variable M to 1 if we're in 80-column mode, or zero if we're in 40-column mode; puts the computer into 2 MHz fast mode if we're in 80-column mode, or exits to line 20 if we're in 40-column mode; makes a centered 40-column window on the 80-column screen.

Line 20 - Sets variable X to the address holding the first BASIC line links according to the proper mode (64 or 128).

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Line 30 - Sets variable NL to the address holding the next BASIC line link; if the address is nonzero, sets X to equal NL, then loops back to the beginning of the line. The program will loop here until X holds the address of the final line link that holds two zero bytes at the end of the BASIC program, at which point it will drop down to execute line 40.

Line 40 - Checks to see if the computer is in 128 mode, and skips ahead to line 50 if it is.

Line 41 - This line calculates where your machine language program should be located (at 62 bytes past the start of the last line link), and places this address in pointers at 175 ($AE) and 176 ($AF). It also copies the low byte of the start of BASIC variables into location 251 ($FB).

Line 42 - This line finishes setting up the pointers our 'mover' routine will need by copying the high byte of the start of BASIC variables to 252 ($FC); locations 253 ($FD) and 254 ($FE) are set up with the low and high bytes of the target address, which is 5120 bytes above the current start of BASIC variables area. After all the variables are set, a SYS to the 'mover' routine is performed. This moves your machine code up 5120 bytes, to where it would be on a 128. After this has executed, the program resumes at line 50.

Line 50 - This line performs a SYS to your machine language program. If your machine language program ends with an RTS, it will return to this BASIC program, but since there are no further BASIC lines to execute, the program will end.

Now that we've covered what the BASIC portion does, we can get on with adding the machine language 'mover' routine. If you have not already entered the BASIC code, do so now. Be sure to enter it in 128 mode on a 128, and make sure that each line is exactly as shown. You may wish to save a temporary copy to disk after you have entered it. Also, since the program won't operate correctly without the 'mover' and some additional machine language to move, don't RUN it. Instead, enter the 128's MONITOR mode, and type the following command:

```
M 1D29
```

If you correctly entered the BASIC portion of the program, then the first line that prints on the screen after you enter this command should start with:

```
>Ø1D29 ØØ ØØ ØØ
```

If the first line does not start this way, you've entered something incorrect somewhere along the way. Check your program against the original before proceeding. Once everything is correct, enter the following assembly code into the monitor:

```
A Ø1D2C SEC
A Ø1D2D LDA $FB
A Ø1D2F SBC $AE
A Ø1D31 STA $22
A Ø1D33 TAY
A Ø1D34 LDA $FC
A Ø1D36 SBC $AF
A Ø1D38 TAX
A Ø1d39 INX
A Ø1D3A TYA
A Ø1D3B BEQ $1D6Ø
A Ø1D3D LDA $FB
A Ø1D3F SEC
A Ø1D4Ø SBC $22
A Ø1D42 STA $FB
A Ø1D44 BCS $1D49
A Ø1D46 DEC $FC
A Ø1D48 SEC
A Ø1D49 LDA $FD
A Ø1D4B SBC $22
A Ø1D4D STA $FD
A Ø1D4F BCS $1D59
A Ø1D51 DEC $FE
A Ø1D53 BCC $1D59
A Ø1D55 LDA ($FB),Y
A Ø1D57 STA ($FD),Y
A Ø1D59 DEY
A Ø1D5A BNE $1D55
A Ø1D5C LDA ($FB),Y
A Ø1D5E STA ($FD),Y
A Ø1D6Ø DEC $FC
A Ø1D62 DEC $FE
A Ø1D64 DEX
A Ø1D65 BNE $1D59
A Ø1D67 RTS
```

Once you have this entered, perform a save from the monitor using the following command:

```
S "UNI-LOAD",Ø8,1CØ1,1D68
```

In order to test that the entire program is working, we'll have to add a little machine language program at the end of the 'mover'. We'll want this to be something that will give us a positive indication that everything is working, so we'll just make a quick routine to print a '1' to the screen. Enter the following in the monitor:

```
A Ø1D68 LDA #$31
A Ø1D6A JSR $FFD2
A Ø1D6D RTS
```

Now save this with:

```
S "UNI-TEST",Ø8,1CØ1,1D6E
```

To perform the testing, you must LOAD and RUN the program UNI-TEST; you cannot simply RUN the version that is already in memory, since it depends on certain pointers that will only be set by reloading the program. Try it from both 64 and 128 modes. If it doesn't work, double-check your code for mistakes—they're easy to make.

As it stands, this version will work well for starting up machine language programs. To use it for mixed BASIC/ML programs, we'll have to add a little bit of code to the BASIC part of the program; but we'll leave that for the next issue of Commodore World. Meanwhile, play with this one a bit. You might also take a look at the BASIC code used in the CHK-LIST utility, located elsewhere in this issue. It takes a different approach, using data statements to poke a machine language routine into different places in the 64 and 128; it works well for small programs with a few differences.

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Peripheral Vision

By Doug Cotton

AN INTRODUCTION TO SCSI DEVICES AND COMMANDS

SCSI (Small Computer System Interface): A local I/O bus which can be operated at various data rates and which provides device-independence, easing addition of storage, communication and other expansion devices to the host computer system.

As if it were that simple, eh? So what is SCSI, really? SCSI is a 'standard' that was intended to ease adding peripheral devices to computers from different platforms. What I mean by different platforms is this: regardless of computer type—be it IBM, Macintosh, Amiga, Atari, C-64/128, whatever—as long as the computer has an SCSI controller, you may add and use SCSI peripherals on any of them. The peripherals need not be designed specifically for one computer platform—indeed, they are designed simply to follow the SCSI standards.

SCSI peripherals come in an assortment of flavors; optical scanners, tape drives, floppy drives, hard disk drives, optical drives and more. And since the SCSI standard has claimed wide acceptance by the majority of peripheral manufacturers, nearly every computer platform that comes to mind has available for it some means of utilizing SCSI peripherals.

Reality Check...

Before we allow ourselves to be overcome with visions of flatbed scanners or CD-ROM drives tied into our C-64/128, there are some important aspects of SCSI to consider. The SCSI 'standard' is, for the most part, a hardware interface standard. In order to make a computer work with any specific SCSI peripheral, some type of software (or firmware) driver is required. The purpose of this driver is to adapt the operating

system of the particular computer so that it can effective communicate to the SCSI peripheral. Devices of the same type can often use a driver interchangeably. But devices of differing types will undoubtedly require separate drivers. So much for 'standard', eh?

Smart Peripherals

When it comes to hard drive mechanisms, you might wonder what it is that makes SCSI drives different than the other types of drives around, such MFM or RLL hard drive types. These latter two drive types were often found on IBM PC and XT systems, and were considered to be 'dumb' drives. Why so? This designation stems from the fact that the computer itself had to perform all 'low level' reading and writing of data on these drives. SCSI drives are considered to be 'smart' because they have what is called an 'embedded controller'—a processor of their own built right into the drive circuitry. This makes SCSI drives very much like the floppy drives we use on Commodore systems; we need only send a command to the drive (along with any data required to perform the task), and let the drive itself sweat the details.

You may have also heard of IDE drives, now common on IBM AT type computers. These are also considered to be 'smart' drives, and were designed to minimize controller interfacing requirements for hard drives on IBM and 'clone' computers. They fall short of SCSI drives for versatility, but do help to cheapen the cost of a system by a small amount.

Hardware Issues

Now that I've 'stepped in it' and declared SCSI to be superior in versatility, I'll naturally have to explain this a bit.

Expandability is a key issue for many users, and SCSI clearly wins out over MFM, RLL, and IDE drive types in this category. Any hard drive, no matter what type it is, requires some kind of controller to interface the computer's signals to the hard drive's signals. Common MFM, RLL and IDE controllers are designed to manage only two hard drive mechanisms—whereas SCSI controllers are designed to handle up to seven SCSI devices.

This brings to light two important advantages: SCSI allows for more devices to be attached to a single controller; and these devices are not limited to being only hard disk drives. But wait—there's even more expandability with SCSI.

The SCSI interface allows any SCSI device attached to the controller to have up to 8 individual 'logical units' built-in. This means that, in theory, the SCSI bus could support 56 drives. In reality, however, multiple logical units in a

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single SCSI device is practically unheard of. Still, it's nice to know that the capability is there for possible implementation in the future. Furthermore, if you have an interest in direct SCSI device programming, you'll have to deal with 'logical unit numbers'—even though the devices you'll be programming will probably have only a single drive or unit.

No discussion of SCSI would be complete without bringing up the 'black magic' aspects that many of have experienced. Indeed, while SCSI has serious advantages in expandability, these capabilities do not come without some quirks.

First of all, it is important to know that SCSI devices attached to the same bus absolutely *must* be jumpered for different SCSI device numbers. The location of these jumpers will vary from one device to the next, but is almost always performed with three sets of jumper pins. Different combinations of having jumper blocks attached to these pins yield a device number from 0 to 7. SCSI devices which are purchased pre-mounted in a case will often have a simple thumbwheel switch on the rear panel to facilitate setting the SCSI device number.

Another consideration is setting of the device's parity enable. Some host adaptors (SCSI controllers) may require parity to be enabled; such is the case with the host adaptor in the CMD HD Series hard drives. Other host adaptors may require parity to be disabled, while others yet may not care how parity is set. Locating the parity jumper will generally require having documentation on the specific SCSI device being used.

Bus termination is also an important factor in making sure your SCSI peripherals operate correctly. It is also one of the strangest factors of working with SCSI devices. According to the SCSI specification, each end of the SCSI 'chain' must be terminated; furthermore, devices located in the middle of the chain must *NOT* be terminated. Terminators generally consist of SIP (Single In-line Package) resistor packs that plug directly into sockets located on a SCSI device's embedded controller board near the SCSI connector. Pre-mounted external SCSI add-on devices generally are not terminated when sold, though many come with a simple external plug-in terminator that mounts easily in one of the ports on the back of the case. You may also purchase this type of termination module separately from many computer supply stores.

So what was all this about 'black magic'? Here's the scoop: incorrect setting of SCSI device numbers, parity, or improperly terminated SCSI chains can cause some very odd errors, or may cause your SCSI peripherals to fail to operate completely. Worse yet, termination is far from being a true science. Due to signal loss and impedance shift caused by multiple connections and mismatched interconnecting cables, I've seen SCSI chains that wouldn't work when both ends are terminated. I've seen others that simply wouldn't allow expanding beyond three or four devices—even though seven (plus the host adaptor) should have been possible. Thus, when expanding a SCSI chain, it is imperative to know the status of each of your SCSI devices with reference to device number, parity and termination. And if everything is set as it should be and things still do not work, it's time to experiment.

By Your Command...

Most SCSI peripherals fall into the 'common' category of being storage devices, and for those that do, a set of common instructions were devised. This helps to keep a wide range of drive mechanisms compatible with drivers. It is this set of commands that we will focus on, though once you are familiar with how the SCSI command structure operates—and how to implement it in your own code—you should easily be able to work with other SCSI devices by obtaining documentation from the manufacturer. We'll also be using the CMD HD Series hard drive as our 'host adaptor' in these instructions, since it provides a DOS command for sending SCSI commands directly to SCSI devices attached to it.

Every SCSI command is made up of several parameters which Commodore programmers will probably find similar in format to the burst command instructions used with the Commodore 1571, 1581, and CMD devices. The first byte of each instruction is the OPERATION CODE—the command itself. The OPERATION CODE byte is made up of two parts, as illustrated below: the GROUP CODE (bits 5 through 7), and the COMMAND CODE (bits 0 through 4).

BYTE \ BIT	7	6	5	4	3	2	1	0
0	Group Code			Command Code				

Since the GROUP CODE is made up of 3 bits, there are 8 possible groups. These groups have been defined in the standard in the following manner:

Group 0	Six-Byte Commands
Group 1	Ten-Byte Commands
Groups 2 through 4	Reserved
Group 5	Twelve-Byte Commands
Groups 6 and 7	Vendor-unique

SCSI devices used in the CMD HD Series hard drives will accept Group 0 ($00-1F) and Group 1 ($20-3F) commands, though the HD is capable of working with any of the command groups. The list below shows the common commands which you can find in these two groups:

Operation Code (HEX)	Description
00	Test Unit Ready
01	Rezero Unit
03	Request Sense
04	Format Unit
07	Reassign Blocks
08	Read
0A	Write
0B	Seek
12	Inquiry
15	Mode Select
16	Reserve
17	Release
1A	Mode Sense
1B	Start/Stop Unit
1D	Send Diagnostic
25	Read Capacity
28	Read
2A	Write
2B	Seek
2E	Write and Verify
2F	Verify
37	Read Defect Data
3B	Write Buffer
3C	Read Buffer
3E	Read Long
3F	Write Long

While there are a number of other commands, some of those not listed may well not be implemented on all drives. You can see from the list that some

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Group 1 commands duplicate the Group 0 commands. The difference is that Group 1 commands have extended addressing, which will be explained later in a little more detail.

The following Command Descriptor Blocks show the complete command structure of Group 0 (Six-Byte) and Group 1 (Ten-Byte) commands.

GROUP 0 COMMAND DESCRIPTOR BLOCK

BYTE \ BIT	7	6	5	4	3	2	1	0
0	Operation Code							
1	LUN			LBA (if required) (MSB)				
2	Logical Block Address (if required)							
3	Logical Block Address (if required) (LSB)							
4	Transfer Length (if required)							
5	Control Byte							

GROUP 1 COMMAND DESCRIPTOR BLOCK

BYTE \ BIT	7	6	5	4	3	2	1	0
0	Operation Code							
1	LUN			Reserved				RA
2	Logical Block Address (if required) (MSB)							
3	Logical Block Address (if required)							
4	Logical Block Address (if required)							
5	Logical Block Address (if required) (LSB)							
6	Reserved							
7	Transfer Length (if required) (MSB)							
8	Transfer Length (if required) (LSB)							
9	Control Byte							

Let's take a look at the terms used to describe the contents of the CDB's shown above.

Operation Code - We've seen this already. This is comprised of the Group Code in the upper 3 bits, and the Command Code in the lower 5 bits.

LUN (Logical Unit Number) - This makes up the upper three bits of Byte 1, and indicates which logical unit the command is intended for. It's rare for a device to have more than one logical unit, so these bits will usually all be zero.

RA (Relative Address) - This is the low bit in Byte 1 on Group 1 (and Group 2) commands; however, it is rarely implemented on SCSI devices and can safely be set at zero.

LBA (Logical Block Address) - SCSI devices have their storage allocated in blocks. These blocks are accessed by commands in logical sequence, starting at Block 0 and extending up to the last available block on the device. This kind of addressing takes the place of physical block addressing, which would require specifying a cylinder, platter (side), and sector.

Because SCSI devices can have a very large amount of storage space, the Logical Block Address is broken up over more than one Byte. Group 1 commands can address more storage space than Group 0 commands, and have four Bytes are set aside for the LBA. Group 0 commands have 21 bits set aside for the LBA. The high order bits for the LBA (identified with MSB) are located in Byte 1 of Group 0 commands, and in Byte 2 of Group 1 commands. The low order bits of the LBA (identified with LSB) are located in Byte 3 of Group 0 commands, and Byte 5 of Group 1 commands. All bits in-between flow logically from the MSB down to the LSB.

For multiple-block operations, the LBA indicates the first, or starting Block to be used by the command.

Transfer Length - The Transfer Length is used to indicate the number of Blocks to be transferred; in some commands it might also be used to indicate a number of Bytes to be transferred (called a Parameter List Length) or to indicate the number of bytes which are expected to be returned by a command (called an Allocation Length).

Group 0 commands use a single Byte for Transfer Length, and can transfer a maximum of 256 Blocks (1 through 255, or 0 for 256). This value is given in Byte 3 of Group 0 commands.

Group 1 commands have a two-Byte Transfer Length, and are capable of transferring up to 65,535 Blocks. The high byte (MSB) is placed in Byte 7, and the Low Byte (LSB) is placed in Byte 8. A Transfer Length of 0 in both Bytes of a Group 1 command means zero.

Control Byte - The Control Byte is mostly made up of unused and reserved bits. Only bits 0 and 1 are defined, and these are used for LINKED command execution, which allows the device to process more than one command in succession. Bit 1 is the Flag bit, and bit 0 is the Link bit.

If the Link bit is zero, then the Flag bit must also be zero. This state indicates that no linked command execution is expected.

If the Link bit is 1, then the Flag bit determine the type of message returned by the device upon completion of the linked command. If the Flag is zero, then the device returns INTERMEDIATE status and sends the LINKED COMMAND COMPLETE message. If the Flag bit is 1, the device returns INTERMEDIATE status and sends the LINKED COMMAND COMPLETE (WITH FLAG) message.

Reserved or *Unused* - All Reserved and/or Unused bits or Bytes must be set to zero.

With the basics of the CDB's (Command Description Blocks) now behind us, it's time to take a look at how we can make use of SCSI commands with our Commodore computers.

CMD's Send SCSI Command

While we do know that the Xetec Lt. Kernal hard drive could be coaxed into performing custom SCSI command programming at a low level, to date, only the CMD HD Series hard drive controllers have been supplied with a high-level DOS command to make such programming easier for the less-experienced programmer. And because the HD has its own microprocessor and ample free RAM, the programmer need only deal with the results of this programming, and thus avoid having to handle data transfers directly.

But before we can jump headlong into the actual SCSI commands and programming, we need to understand how to issue these commands to the SCSI device via the CMD HD host adaptor. As shown in the CMD HD User's Manual, the Send SCSI command has the following syntax:

```
PRINT#lf,"S-C"CHR$(de)CHR$(bl)
CHR$(bh)CHR$(cb)...
```

where:

lf = the logical file number for the command channel
de = the SCSI device number
bl = the low byte of the user defined SCSI data buffer in the HD's RAM
bh = the high byte of the user defined SCSI data buffer in the HD's RAM
cb = the command bytes of the SCSI command to be sent

The logical file number for the command channel is the first parameter from the OPEN statement used to open the command channel to send this command. In this example, *lf* equals 15:

```
OPEN15,12,15
```

The base drive built into the HD is SCSI device 0. External devices will have other addresses extending up to through device 7.

When you want to send an SCSI command to the CMD HD, you must first define an area of RAM in the HD to use as a buffer. Many SCSI commands will require this buffer space to transfer actual data, such as when reading and writing blocks of information. We'll be using the 8K of free RAM in the HD starting at $3000.

The CDB data which we discussed earlier make up the remainder of the bytes sent with the command.

TO BE CONTINUED IN ISSUE 3

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How to Type In Program Listings Appearing in Commodore World

While *Commodore World* currently doesn't make it a habit of publishing type-in programs, a number of our columns do require entering sample routines. For this purpose, we have created our CHK-LIST utility for the Commodore 64 and 128. This utility use a 16-bit CRC checksum method to verify that you have correctly entered each program line, and that each of the characters in the program lines are in the correct order.

You'll notice that program listings appear with a column of values to the left of the program lines. These values are the CHK-LIST values and are not to be entered as part of the program. A similar set of values are generated by the CHK-LIST utility to allow you to verify that everything has been entered correctly.

Enter the CHK-LIST program from BASIC. You can use either a C-64 or a C-128 computer. If you use a C-128, it can be in either 64 or 128 mode. Be sure to enter each line carefully to avoid mistakes—until you actually have CHK-LIST working, finding errors in program entry won't be easy. After you have finished entering the program, be sure to SAVE a copy to disk before you attempt to RUN it, just in case. If you aren't familiar with how to save a program to disk, you can use the following command:

```
SAVE"CHK-LIST",8
```

CHK-LIST

```
A454  10 F=ABS(PEEK(65533)=255):M=49152:IFFTHE
      NM=4864
6E2F  12 C=0:PRINT"{CLR/HOME}WORKING";
E350  20 READD:IFD=-256THEN40
AD20  30 C=C+D:IFD<0ANDF=0THEN20
3316  31 IFD<0THEND=0-D:M=M-1
07F0  32 POKEM,D:M=M+1:PRINT".";:GOTO20
578A  40 PRINT:READCK:IFC<>CKTHENPRINT"ERROR I
      N DATA STATEMENTS!":END
0679  50 PRINT"DONE.":END
8D92  60 :
E7FE  49152 DATA 165,43,-45,133,251,165,44,-46
      ,133,252
B2AE  49160 DATA 169,0,141,36,193,-20,169,147,
      32
CD50  49168 DATA 210,255,32,194,192,-19,160,0,
      140
C9CD  49176 DATA 37,193,-20,177,251,133,253,20
      8,3
2058  49184 DATA 238,37,193,-20,200,177,251,13
      3,254
EA9C  49192 DATA 208,3,238,37,193,-20,173,37,1
      93,-20
6C15  49200 DATA 201,2,208,1,96,200,177,251
E70E  49208 DATA 170,200,177,251,32,205,-50,18
      9,-142,169
6795  49216 DATA 6,133,211,-236,169,61,32,210,
      255
F80F  49224 DATA 169,32,32,210,255,160,2,177
9735  49232 DATA 251,32,213,192,-19,200,177,25
      1,32
0734  49240 DATA 213,192,-19,200,177,251,240,6
      ,32
D99D  49248 DATA 213,192,-19,76,90,192,-19,173
      ,191,192,-19
AC30  49256 DATA 32,167,192,-19,173,190,192,-1
      9,32,167
```

To use CHK-LIST, load it into your computer and type RUN. Make sure that any program you are currently working on is saved first, or start CHK-LIST before you begin typing in a new program. After you have CHK-LIST in memory and running, type NEW. You may now either load or begin typing the program you wish to have CHK-LIST check on. Whenever you want to check your program type in the appropriate SYS command given below:

C-64 or C-128 in 64 mode:	`SYS49152`
C-128 in 128 mode:	`SYS4864`

Note that when typing in listings, some special characters will appear in braces. For example, {CLR/HOME} means that you should enter the Clear key, which is done by holding down the SHIFT key while you press the HOME key. Other times you may see a number ahead of the key name, such as {3 SPACES} or {5 CRSR L}. This means you should press the key indicated the number of times shown. Most special keys are easy to identify, since the text used will generally match the text on the key. Exceptions are the space bar {SPACE}, and cursor keys which include directions ({CRSR UP}, {CRSR DN}, {CRSR L} and {CRSR RT}). Be sure to use the correct key combinations for color keys, such as <CTRL><2> for {WHT}.

CHK-LIST *(cont.)*

```
B343  49264 DATA 192,-19,169,13,32,210,255,165
      ,253
DF3A  49272 DATA 133,251,165,254,133,252,238,3
      6
A6E2  49280 DATA 193,-20,173,36,193,-20,201,20
      ,240,3
936E  49288 DATA 76,18,192,-19,162,0,189,1,193
      ,-20
8C3A  49296 DATA 240,6,32,210,255,232,208,245,
      32
EB74  49304 DATA 228,255,201,13,208,249,32
6095  49312 DATA 228,255,208,251,76,8,192,-19,
      72
A001  49320 DATA 106,106,106,106,32,180,192,-1
      9,104
FAA2  49328 DATA 32,180,192,-19,96,41,15,170,1
      89
EBFD  49336 DATA 20,193,-20,32,210,255,96,0,0
E907  49344 DATA 0,0,169,0,141,190,192,-19,141
E8EA  49352 DATA 191,192,-19,169,33,141,192,19
      2,-19,169
A7D7  49360 DATA 16,141,193,192,-19,96,162,8,7
      2
6040  49368 DATA 41,127,77,191,192,-19,141,191
      ,192,-19
D24B  49376 DATA 24,14,190,192,-19,46,191,192,
      -19,144
D52F  49384 DATA 18,173,192,192,-19,77,190,192
      ,-19,141
DCA6  49392 DATA 190,192,-19,173,193,192,-19,7
      7,191,192,-19
6032  49400 DATA 141,191,192,-19,104,10,202,20
      8,215
37C5  49408 DATA 96,13,80,82,69,83,83,32
9A2A  49416 DATA 60,82,69,84,85,82,78,62
AC90  49424 DATA 13,13,13,0,48,49,50,51
FE71  49432 DATA 52,53,54,55,56,57,65,66
017E  49440 DATA 67,68,69,70,0,0,-256,37944
```


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Carrier Detect

By Les Songa

ON-LINE CONFERENCES: GENIE HOSTS A VISIT WITH THE COMMODORE GURU

Many on-line services such as GEnie, CompuServe, and Delphi offer 'real-time' conferences—the electronic equivalent to having a guest speaker come to a user group meeting. This gives callers a chance to meet with others of similar interests and sometimes meet a special guest they may never have the opportunity to meet in person.

Recently, the Commodore Roundtable on GEnie had Jim Butterfield over for a real time conference. Butterfield's name is often followed by "Commodore Guru", as he is well respected for his knowledge of our computers. Back before the Commodore Pet, Butterfield was writing programs, giving lectures, and writing articles and books about computers. He has used, programmed, and written stacks of articles about each new computer Commodore put out on the market. Many have driven thousands of miles to hear him speak, but this time users wishing to ask him questions and hear his views could do so without leaving home.

Just what is the Commodore Guru doing these days? Does Jim Butterfield still use a Commodore 64 or 128? Has he too embraced MS-DOS computers like others have? How does he feel about the world of computing today? These and many other questions were answered during the conference. Jim uses a C-128, writes articles for Compute Gazette on Machine Language programming, and uses a variety of "other" systems to do odd jobs, including, as he stated it, "clumsy ones like the clones."

When asked how his association with Commodore computers began, Jim took us back to 1963 when he became a programmer, "not on a business machine, with those new fangled classy languages Fortran and Cobol, but instead on a real-time beast that had to be worked in Machine Language. When microcomputers started to appear in 1976, it was (for me) like a return to the good old days. I restarted on a KIM-1 machine, one of the first 6502 boards, 1K of RAM, 2K of ROM, and it could play chess. Because it was about the first factory-assembled system, it was also the starting point for a user community. *Kim-1 User Notes* was a popular newsletter (for its era), and later I collaborated on a book called *The First Book of KIM* (a much-copied title style). Now: Commodore acquired the manufacturer of the KIM-1, and was persuaded to launch the first personal computer, the PET."

The Pet still used a 6502 chip, which Butterfield had programmed before, and was familiar with, so he felt well qualified to assist others with their Pets, and has continued helping others with their computers for the last fifteen years.

Butterfield listed the four computers he currently owns and uses regularly: a Commodore 128, "used for general programming and fooling around, and for preparing the M/L articles that I do for the Gazette." An Amiga 2000, an Amiga 600, plus "a small and quite ancient MS-DOS machine." He has all four systems networked together, so he can pass data between them. In his backup computer collection, Butterfield has an extra 64, a B-128, a B-256, a PET 8032, and a couple of PET dual disks, "Just in case I come across something that needs me to look way back. Hard to find room for more than three or four operating computers and their peripherals and screens. Gets cluttered."

Asked if his family shares his interest in Commodore computers, it was interesting to learn that the Guru does indeed have a family: "My wife regards computers as something of a harmless aberration; I suspect she considers it less harmful and less costly than drinking. My five year old daughter is getting quite interested in computers (I'm not pushing) and may get her own soon."

Many questions were asked about the future of our Commodore 8-bit machines, and what steps we can take. Butterfield observed that "we are into computer 'fashion' rather than questions of technical excellence here. Just as, with VCRs, most people see BetaMax as technically superior to VHS, the tech arguments counted for little. The 8-bit computers will work for a long time, and would always present a cost-effective way of taking on some kinds of work. But I fear they are out of fashion, and we won't see too many new ones. ...Being orphaned is never fun, of course. It makes obtaining ANYTHING harder. As I see it, the most serious thing would be that users could no longer get the custom chips used by the 64 and 128. Say, the PLA, the SID, and some similar. There may be a second-source possibility; but stockpiling older machines may also be a good move for the 64/128 community."

It seems only natural, with the sheer volume of programs that Jim Butterfield has written over the years to be asked about what he considers the best programs for the C64 and about his favorites, his own and those by others. He commented that he's impressed by programs that "have both technical excellence and aesthetic appeal," noting that "Best" is a relative term. He went on to comment that some of the most brilliantly conceived and executed programs such as GEOS, and others like LITTLE COMPUTER PEOPLE

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and JUMPMAN are programs he seldom runs. "I mostly run my own stuff. That isn't even for reasons of excellence; it's just that I'm comfortable with my own programs (And I try to target my programs for DUMB users, which is what I turn out to be later when I use them)." It's reassuring to know that even Gurus can run into problems with their own programs. Of his own programs, Butterfield said that about eight of the 144 or so he's written could be considered classics, and listed a few, such as: SuperMon, Copy-All, and UniCopy, adding, "oddly, one of the programs I was most pleased with is FileSort, which is almost unknown. [It] grabs a "standard" type file, sorts it, and writes the result. Understands about computer related stuff, like multiple fields, numeric/alpha, and ascending/descending. Ran perfectly the first time I wrote it. Well, almost."

The conversation turned to another Butterfield natural, unexplored computer territory such as the C65 computers that Commodore moved from their warehouses to mail order firms recently. Butterfield explained, "Commodore made a few dozens, prototypes, of the C65 and recently blew them out of the back door. There are quite a few proud new C65 owners trying to find out how the insides of their machines work. And, being prototypes, they are NOT all identical. The C65 has a new custom processor chip with a LOT of new instructions that never existed before, not even in other "clone" chips. It has a new colour screen capability, can be clocked at a MUCH higher rate—and, yes, it does have bank switching. There are 255 bank numbers, although I don't think you can really put that many in. And the machine can be triggered to be a 64 (as does the 128)."

The conference went on to more detailed discussions, including ML programming questions about Bank switching in the 128, and further details concerning the C-65. Many users were able to ask questions, and several commented to Jim on things they've learned from him over the years.

This is what on-line conferences are all about; they give us the chance to meet fellow Commodore users, and ask some of the most respected programmers and writers questions in a 'real-time' format. There's far more "personality" to on-line conferences than can be shown in a short magazine article. Be sure to check out the conferences on your favorite on-line network!

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On-line News Nibbles

Compiled by Lee Songa

Emulator Discussions out of COMP.SYS.CBM

Results from a vote conducted by a neutral third party on Usenet have resulted in the creation of several new newsgroups to cover the discussions of emulator programs and hardware. The comp.sys.cbm newsgroup, which covers the range of Commodore 8-bit computers, has in the past been inundated with articles and messages concerning IBM and other platform computers emulating the C64 and other Commodore computers, causing tension and annoyance amongst true Commodore users. With newsgroups designed specifically to discuss these emulators, the comp.sys.cbm newsgroup can remain strictly related to Commodore specific topics. The newly created newsgroups include: comp.emulators.announce, comp.emulators.cbm, comp.emulators.apple2 and comp.emulators.misc.

DTJBBS Revision 940521

DTJBBS, a Commodore 64 BBS program, has been revised. This BBS supports 300 baud to 38.4K bps modems using the SWIFTLink cartridge, and supports all Commodore 1541, 1571, 1581 disk drives as well as CMD's RAMLink and Hard drives. DTJBBS is available as shareware from Andrew Bernhardt, P.O. Box 669, Beatty, Nevada, 89003. The author requests a small (not more than $35) shareware fee. DTJBBS is available for downloading on the support BBS, Second Home Electronic Cottage, (702)-553-2869 (300-9600 bps V.32). The BBS can be can also be downloaded from GEnie - file numbers 14910, 14911, 14912, and 14913.

QWKRR128 v4.3 Soon to be Released

Rod Gasson's 128 off-line mail reader has been upgraded and is currently in the Beta testing stage. Enhancements include macros, which are designed to speed typing, as well as offer user possibilities including message "intro's" and "sign offs". Other new features include new character sets which allow uuencoded files to be saved in a format that can be translated properly, the ability to save text files in PET or ASCII format, centronics printer support, and screen blanking. QWKRR128 V4.3 will be available on on-line services and bulletin boards under the following names: QWKRR43.TXT, QWKRR43A.SFX, QWKRR43B.SFX and QWKRRUT.SFX. QWKRR128 is a shareware program. Registration allows use of all the features of the program. Registration fee is $15.00 U.S. or $20.00 Australian funds. For more information, or to register, contact Rod Gasson, 90 Hilliers Rd, Reynella 5161, South Australia.

Unzipping PKzip 1.02 on 128

NZP12811.SFX, a shareware utility by David Schmoll, gives 128 users the ability to unzip MS-DOS PKzip 1.02 files. QPE is a small utility program which is used in conjunction with QWKRR128, giving an option to dissolve ARC'ed or ZIPed mail packets and load the off-line mail reader. Note that UNZIP128 unzip's PKzip 1.02 files, not PKzip 2.04g files. The shareware fee for this program is $10.00. Contact David Schmoll, 1703 Pagosa Way, Aurora, CO. 80011.

New Dialogue 128 Extension Available

Written by Henry Sopko, BLANK-IT.EXT, a very short extension program for the Dialogue 128 term program, will blank the screen after a minute of inactivity from the computer keyboard. The screen is reactivated when a key is pressed, without interrupting program activity such as during a file transfer. The file is available in uuencoded form in the comp.sys.cbm newsgroup on the Internet, or on Fidonet.

Commodore Central

Delphi's Commodore Central SIG now offers three different conference nights. New Members can learn about Delphi on Monday nights, Wednesday night conferences center around using GEOS, while Friday nights are open discussion nights. Each conference begins at 9pm EDT. The Commodore Centeral SIG message forum has Commodore conversations ranging from inventive disk drive cleaning to Commodore magazines. The SIG also offers a gateway to read the COMP.SYS.CBM newsgroup, as well as a menued system to retrieve Commodore files from Internet FTP sites. Delphi offers 5 hours free access for new users. To join Delphi, dial 1-800-695-4002 by modem. Once connected, press the return key several times. When prompted for a password, type "FREE".

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BBS SPOTLIGHT
OMNI 128

A CHAT WITH OMNI 128 AUTHOR BRIAN BELL

How did Omni 128 come about?
Omni 128 BBS had it's humble beginnings as a simple machine language interrupt carrier detect routine for a PUNTER transfer protocol in a friend's BBS program. Later in 1986, I began to experiment with writing terminals that could handle the speed of a 2400 bps modem, and this eventually evolved into a machine language operating system with a BASIC face on top. Omni is currently a group of large programs which run on top of the ML operating system.

I've noticed that the program is upgraded often. What's the current version?
The main portion of the BBS is currently at version B.7W, which has no particular meaning—the "B" doesn't mean "Beta". But this method allows me to keep track of upgrades to the main. All modules are individually dated using a year/month/day/letter system.

And the cost?
The BBS package is $65.00, and the completed manual will be $15.00.

And what does that include?
Approximately 100 on-line modules and utilities come with the system, including a simple network for communicating with other Omni 128 systems, and also a special mode allowing communication with Color 64 Network compatible BBS's. There is no current link to other networks such as FIDO or Internet, but plans are well developed for this to be implemented soon. On-line game packages are available for downloading at various systems and the home support board.

Are there additional items a SysOp might want that would cost extra?
All of the system files and extras are currently included with the BBS, but I also will program special applications, time permitting—either for free, or for a set fee, depending on the feasibility and complexity of the project. I have yet to charge anything for the special modules written for other SysOps, and they are available to all.

Could you tell us which modems are supported?
Modem types tested and supported include (in order of preference), U.S. Robotics Sportster 14.4K modem, the Supra96/14.4K FAXModem (digital readout versions), the Supra 2400, Packard Bell 2400, Avatex 2400, and Aprotek C-24 mini modem. Other modem types may or may not work without additional programming, depending on individual characteristics. I'm willing to test new modem types for compatibility/programming if they are shipped to me for evaluation. I'm in the process of testing different models on a one-by-one basis, and with 28.8K modems coming down drastically in price, ($180 has been mentioned) these are on the top of my list to work on.

Interfaces supported include CMD's SwiftLink, the OmniTronix Deluxe RS-232 interface, or any other compatible user port interface. Hardware handshaking lines for high speed operation is desirable, and some brands do not support that—Supra and Practical Peripherals come to mind. SwiftLink offers superior performance in all conditions, even at 2400 bps.

All baud rates from 38,400 bps on downwards are supported. Omni 128 has the ability to use the full 38,400 bps bandwidth for all carrier rates, without undesirable "over-runs" of callers at lower speeds, a special feature unique to Omni and not found in any other BBS, even for 16/32 bit computers.

What kind of drive support does Omni 128 have, and are there any minimum requirements?
The entire line of CMD drives and RAMLink based storage devices are supported, as are standard Commodore DOS compatible disk drives, such as the 1581/1571/1541 series. Minimum requirement is either a CMD RAMLink with 4 megabytes, or a CMD HD-Series hard drive. Xetec LT. Kernal drives are not currently supported.

Is there support for special features in any of the devices you mentioned?
Omni 128 has a unique and reliable system supporting the flexible subdirectory arrangement that the CMD hard drives and RAMLink can use. 1581 subdirectories are also supported. Either parallel or serial cables may be used on the CMD HD. Omni 128 reads the real time clock in CMD devices to set the BBS time and date, and also recognizes the time-and-date stamp in all file operations such as file copying, pattern searching of directories, etc.

Terminal emulations seem to abound on Omni 128. Which ones are supported?
The remote caller is supported with Commodore C/G graphics, ASCII, IBM ANSI color, RIPscrip (remote imaging protocol), and SupeRes hires graphics. ANSI and SupeRes modes are detected automatically on most terminals, and soon so will the RIPscrip mode. RIPscrip allows mouseable menus and other interactive features when calling from a RIPscrip supporting terminal.

I understand that Omni 128 has a very extensive message base capacity?
Yes. There are twenty root message base areas, each with 9 additional automatically scanned bases, making up 191 automatically scanned areas. Further, up to 990,001 separate message bases can be supported for SIG groups, and they can be entered simply by typing their number. Each message base can handle up to 100 separate chains (threads) each with unlimited responses, and responses can be automatically weeded. Standard sequential files are used, which are scanned at high speed.

How about the upload and download areas?
The File Transfer section has the same generous limits as the message base—up to 191 automatically scanned areas, or 990,001 SIG transfer areas, each allowing up to 100 files. Each area can have a unique device,

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path, and entry file. Files are shown using their full filenames and corresponding numbers, or the SysOp can elect to create a text file displaying the available files in any way they choose - which also displays at very high speed. File descriptions are unlimited as they are stored in separate files.

Omni 128 seems to support a long list of file transfer protocols as well. Can you give us a rundown on those?

For both uploading and downloading of files, there is Punter, Multi-Punter, Xmodem Checksum, and Xmodem CRC. For downloading only, there is also Xmodem 1K CRC, Ymodem-128 (batch-standard), Ymodem-1K (batch), and Ymodem-1K/g (batch, streaming). For uploading only, there is a Zmodem batch receive system, with individual file confirmation after completion. A "resume" function is being worked on.

Can you explain how Omni's networking options operate?

The current networking system is comparable to a direct bulletin and mail transfer facility with no shared echoes. Plans to implement a UUCP type network with QWK off-line reader support are in the works, in conjunction with another programmer who developed a very powerful network for C-Net 128.

A special option allowing SysOps to exchange files in batches is implemented. The system also has a mode which allows sending and receiving public and private messages to Color 64-type network compatible systems.

You indicated earlier that there isn't a completed operation manual as yet. What kind of documentation is provided with the system right now?

Currently, a 12 page setup document is included with the system. In addition, text files are included containing approximately 150,000 bytes of detailed update instructions describing new features and how to install them. These documents and other information gathered from beta test SysOps over the last 6 years will provide the basis for the completed system manual.

How do you handle technical support for registered SysOps?

Support for Omni 128 is available on the home BBS system at (206) 536-9353, 24 hours a day, and also via U.S. Mail. A second dedicated support line should be installed this summer ('94). Upgrades are released at the end of each month on the home board, and can be mailed if desired. The many Omni SysOps are usually glad to answer any questions a new SysOp may have.

Is there anything we missed that you'd like our readers to know about?

Omni 128 has been in development for almost 7 years, and has pioneered and perfected many things which have since appeared on other programs, plus many others which you won't find available anywhere else.

Quite a few programmers have signed onto this project in the past year, and have an impressive array of program modules in development and several finished. Omni's operating veneer is in BASIC-7, and as such can be modified by anyone familiar with BASIC, though extensive mods to the "look" of the BBS are possible without programming.

My aim is to continue to upgrade the program in ways that best serve the 8, 16, and 32 bit computing worlds.

Other unique features of interest to the System Operator or Caller...

Virtual Memory Editor - A system text editor which can hold over 43,000 bytes of text is available on-line for the SysOp.

External Program Capability - In addition to running modules designed specifically for the system, Omni can automatically call off-line programs written in BASIC 7, either compiled with BASIC 128 or plain BASIC, and even CS-DOS auto-exec scripts. These programs run off-line, and the BBS can be called automatically after they are finished. This opens up a lot of possibilities for beginning and advanced programmers alike, who want special things done at midnight, for instance. Off-line programs can be run at any time or date, determined in advance by the operator. No human intervention is required once this is set-up.

Video Mode Control - Allows local screen printing to be disabled for maximum modem input/output speed.

40 Column RGB - Lets you select a very vivid 40 column display on the 80 column screen. Especially useful for creating and examining 40 column color graphics.

PrintFile - Allows output that would have gone to the printer to be directed to a disk file on any unused device. VERY useful!

Separate Last Call Date/Times - The system maintains three separate 'last call date-time' (LCDT) for each caller. One records the last visit to the system proper, another, the message base visit, and the last, the transfer area. The caller can edit both the message base and transfer LCDT while on-line, to make different numbers of messages or files appear as NEW. This is very useful when a caller has not been on in a long period, and doesn't wish to read large numbers of messages accumulated during the interval.

Multiple Login Modules - The SysOp can arrange customize programs to execute before the caller reaches the main menu. These can be chained if desired.

Midnight Update - In addition to many standard tasks the system performs at midnight, customized applications can also be run and chained. For instance, a SysOp might want to have a certain group of files copied from one location or device, to another, every night, or only on certain days, etc.

You may order Omni 128 by sending a letter requesting registration to:

Omni 128 BBS
4135 N. 36th
Tacoma, WA 98407

Detailed information is also available on the author's system, Omni-World 128 (see listings), in message base 9 (b9 from main) and transfer area 13 (t13).

Omni 128 BBS Systems

The following is a partial list of systems operating Omni 128 BBS. Some may not be running the latest version - check the author's system for the newest info.

9600 and 14.4K bps Systems

Omni World 128	(206) 536-9353
Huggybear's Den	(206) 582-8285
Digital Illusions	(216) 341-1414
Dead Poet's BBS	(908) 288-8771
Dragon's Lair	(915) 598-8442
The Battleship	(713) 957-3217
Negative Ca$h Flow	(813) 526-2971
The Wizards' Workshop	(713) 992-2526
Smart Modem	(216) 543-1866
Cereal City BBS	(616) 962-1390
Reaper's Place	(519) 472-0641
Vic's BBS	(618) 234-6235
Tardis BBS	(805) 987-9541
Remote Control	(316) 421-0333
The Twilight Zone/AZ	(602) 827-2706
Cybernet 2000+	(813) 895-8915

2400 bps Systems

The Ranch	(206) 536-4689
Greenwood Manor	(916) 865-7011
The Coffee Shop	(206) 565-6306
Civic 64/128	(805) 382-1125
Power User BBS	(206) 427-1083

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Over The Edge

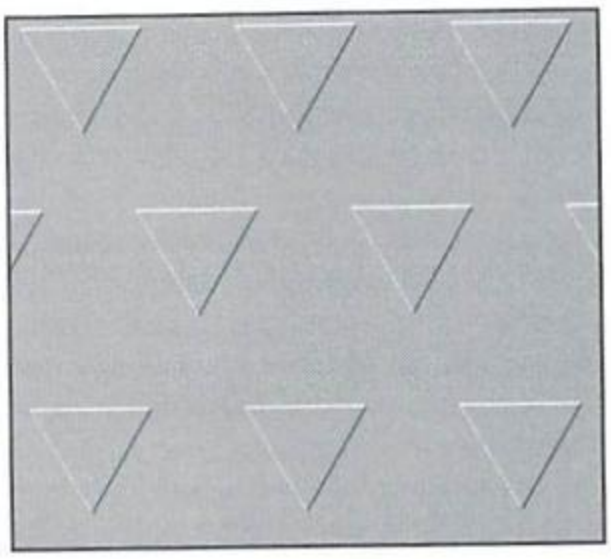
By Charles A. Christianson

COMMODORE PROVES THAT YOU CAN FAIL IF YOU TRY HARD ENOUGH...

Although I have not been over burdened with mail for this column, I have been answering a tremendous number of questions about the current status of Commodore. As we all know, Commodore International, Ltd. has put its major subsidiary Commodore Electronics, Ltd. into voluntary liquidation to help satisfy some of its obligations to creditors. This announcement was made in an April 29, 1994 press release which stated that the company was finally going to throw in the towel after posting substantial losses in consecutive quarters. From what I hear, the company is so cash poor that they simply cannot afford to produce the products needed to fill orders. Sad, isn't it?

Now, this bit of news sent the rumor mill into high gear. So far, I have heard of no less than three companies which have already purchased Commodore, and of five others that are engaged in serious negotiations for the purchase. In terms of factual data, there isn't much. Based on what I have heard from reliable sources, who prefer to remain nameless, there are two, maybe three major companies interested in buying all or part of Commodore, but anyone who really knows what these companies actually want for their money isn't saying.

I very much doubt that any of these companies are interested in resurrecting the entire product line; certainly not right away, anyhow. Indeed, chances are that one or more of these companies are interested only in purchasing intellectual property such as chip sets and/or patents. The fact of the matter is that very little of Commodore's present product line is worth trying to salvage, with the exception of perhaps the Amiga 1200 and their new CD-32 game machine. Why these



two products? Well, the Amiga 1200 is an example of what Commodore has always done well with—an inexpensive computer with a fair amount of bang for the buck. It's CD-32 product, which only recently appeared in the U.S. marketplace has the potential to be a real contender in the fledgling CD game machine market. Again, this machine offers a lot for its low price, and is aimed directly at a market which will see substantial growth in the next couple of years.

So, why do I so quickly discount the other product lines? Simple. The remaining Amiga product line is overpriced and underpowered compared with today's less expensive and powerful DOS and Macintosh machines. Not to mention the fact that buyers in that price range typically are looking for a business machine with support from major software vendors. A small number of Amiga 4000's will probably be viable for sale to the niche desktop video market, but it won't amount to much.

I didn't mention the 64 or 128, did I? Don't get me wrong; I think there is value to the 8-bit line—but that isn't what most large companies would think. In the computer industry, there's a general consensus that there is only one type of computer—MS-DOS—and anything else is inconsequential. This mentality is frustrating to deal with, but unfortunately it is one that most companies and financial institutions subscribe to in today's computer industry. Other 16- and 32-bit technology takes a back seat. Furthermore, any 8-bit technology is considered so old and obsolete by corporate types that anything having to do with it will be ignored.

So when it comes down to the 8-bit C-64 and C-128 computers, it's impossible to tell at this point just what will happen with any rights or remaining inventory. Our attempts to contact the CFO of Commodore regarding the liquidation have been unsuccessful. It is my hope that there will be more information regarding the C-64 and C-128 available by our next issue. You can bet I'll be staying on top of this situation.

Another question everyone is asking is, how does a company go from being a leader in their industry to bankruptcy? Easy! Don't bother with marketing your product. Go to great lengths to alienate the loyal customers that put you on top (8 bit)! Spend outrageous amounts of money on developing state of the art technology, but allow it to become outdated! Grossly overpay your executives and board of directors! And last but not least, make a whole slew of miserable business decisions which result in your inability to pay your creditors! They have done such a great job, I think they might want to consider a 'How To' video on dissolving a major company.

Let's take a closer look at some of Commodore's blunders, shall we? The Amiga is a good starting

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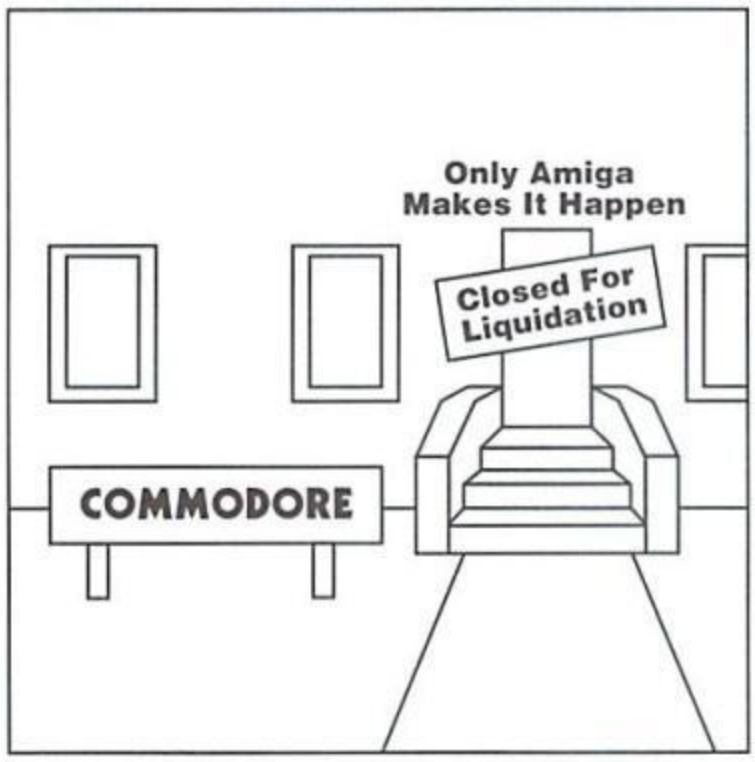
point, since it marked Commodore's departure from the success they had experienced with their 8-bit line.

The Amiga 1000: The first Amiga was the A1000, which showed the promise of the Amiga architecture, but probably also caused a lot people who may have been open to a new machine to turn and run. It released before it was truly ready—the operating system was prone to crashing, someone had bungled the motherboard layout, causing the connectors to have pin assignments backwards on some of the 'standard' connections, expandability was poorly planned. About the only good thing I can say about the A1000 is that it didn't stick around long.

The Amiga 500: The most successful Amiga model to date released with an improved operating system which was even further refined over the life of the product. Connections that were incorrect on the A1000 had been fixed, and some improvements had been made on expanability, but those wishing to expand it too far found themselves faced with a myriad of items taking up more and more desk space. Alas the price was too high, especially since expansion was almost mandatory to operate anything but a handful of games.

The Amiga 2000: Finally, an Amiga that actually looked more like a desktop PC, the A-2000 offered true expandability plus newer and higher speed versions of the 680x0 family processor. It also had built-in hard disk drive options, and an extra drive bay. But all this came at a price that was far too high for most of the market that Commodore was used to selling to. A base model A-2000 really shouldn't have cost much more than an A-500; but it cost quite a bit more, and the A-500 continued to remain the leader in sales. It was also during the life of the A-2000 that Mac's and PC's began gaining some ground in the area of graphics, an area where the Amiga had ruled uncontested.



The Amiga 3000: Commodore regained some of the technological ground they had lost in the area of graphics. However, the A-3000 was priced so high that it could only be considered by those who might be shopping for a fully decked-out A-2000. Granted, some of the cost was mandated by having a built-in SCSI controller and flicker-fixer for working in interlaced graphics modes. While the enhancements made the A-3000 look good to the video market niche that Commodore had carved out, incompatibilities delayed that very market from buying the A-3000 while waiting for product upgrades. It was around this point in time that Commodore decided to turn their marketing efforts (?) toward the educational market—a plan doomed to failure with the lack of any true educational software (not to mention the lack of any real marketing savvy). With 'state-of-the-art' PC's selling for half the price of an A-3000, it too was doomed to a dismal survival at best. Yet again, the A-500 continued to be the leading seller for Commodore's Amiga line, but the price was still too high. Commodore needed a cheap Amiga to capture the low-end market that it had lost when they abandoned their 8-bit line.

Meanwhile, Commodore marketing had taken another seemingly no-brainer victory, and turned it into a complete loss. Their CDTV, with an utter lack of marketing, poor distribution, a price just out of the reach of consumers, withered and died. Their PC clone line, once successful, was also dead.

It was at this point that Commodore finally did something right. Unfortunately, they did it way too late. The release of the A-600, A-1200, and A-4000 all came within a few short months. New machines with updated technology, and two of these (the A-600 and A-1200) aimed squarely at the low-end market—and priced right. The A-4000, while expensive, did maintain the high-end for the desktop video niche, while the other two models could effectively sell to the market Commodore had owned in the past. In fact, many C-64 and C-128 owners were finally buying their first Amiga.

Yet, Commodore was already deep in financial trouble by the time these products released, and were spreading their resources even thinner by trying to regain the interactive/game CD market with CD-32, successor to the failed CDTV. The really bad part of this was that Commodore was betting the farm on CD-32. Hadn't they learned from past experience? While CD-32 is indeed a sound product, they should have been well aware that they didn't have the money to market it successfully at this point. They apparently felt that the 1993 Christmas selling season was do or die for the product, and that in a year it would be too late. They poured resources into getting CD-32 ready for a pre-Christmas release in the U.S., but failed to meet the deadline. Whether they had an adequate marketing campaign ready to meet this challenge, we'll probably never know. Certainly, it never materialized. Meanwhile, so much had gone into ramping up production on CD-32 for the expected 'opening of the flood gates', that Commodore could no longer fulfill orders for A-1200 and A-4000 machines. They had seriously underestimated the demand for their new computer models, while the failed planning for CD-32 left them an abundance of this product sitting in the warehouse.

Was Commodore management so naive as to not recognize when they were making the same blunders, over and over? Apparently, to some degree, they were. But the final demise was probably struck more by greed than anything. Trying to recapture their lost computer sales and at the same time claim the top position in the interactive CD market was indeed far more than a company in their situation should have been attempting. Indeed, it would seem to take a company blinded by greed or desire for market dominance to take such a huge gamble.

Now, what effect will all of this have on everyone who continues to use and enjoy the C-64 and C-128? Quite honestly, I don't believe that it will have any effect on those of us who continue to make use of these machines. Why? Because we haven't had any real support from Commodore for many years. What about the availability of the Commodore computers, disk drives, mice, modems, and software? These items have been out of production for some time already, yet there are still thousands of computers and disk drives available both through mail order companies as well as in the pre-owned market. New hardware from CMD, Rio, SSI and others, plus a large offering of programs still available round out the supply picture.

I guess the questions you need to ask yourself is; does my computer continue to perform the tasks for which I use it? Do I want to spent a few thousand dollars to switch platforms and learn how to use a new computer and software? Most of the people I speak with answer the latter question with a definite *NO*! How about you?

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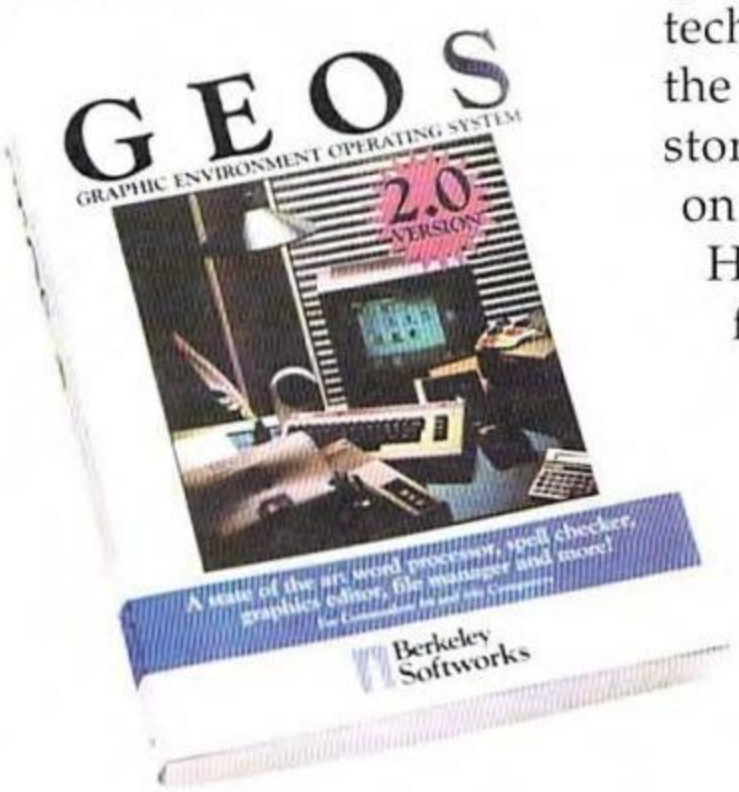

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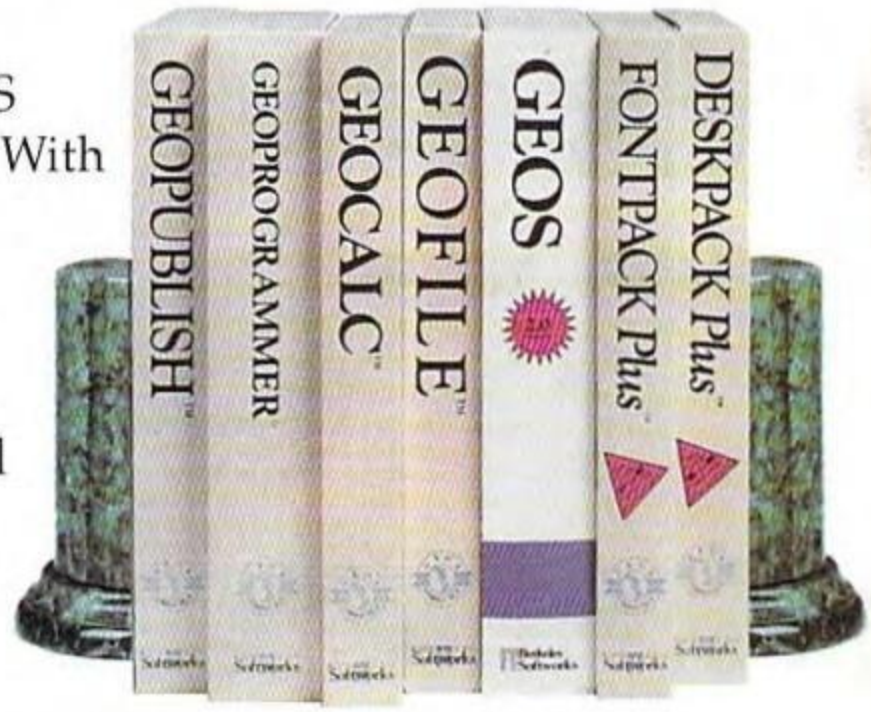

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